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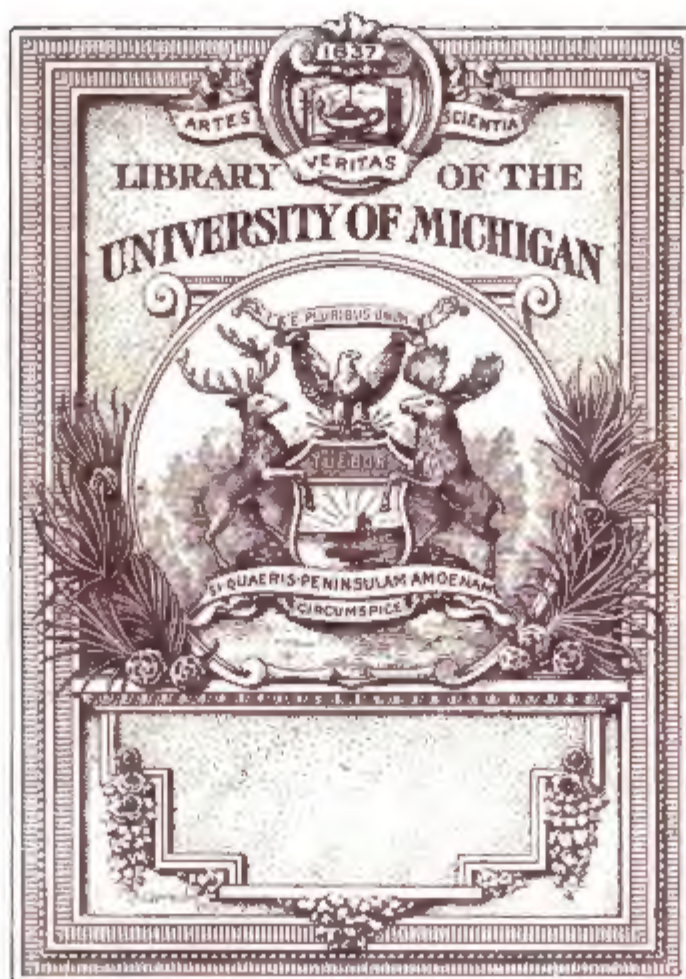
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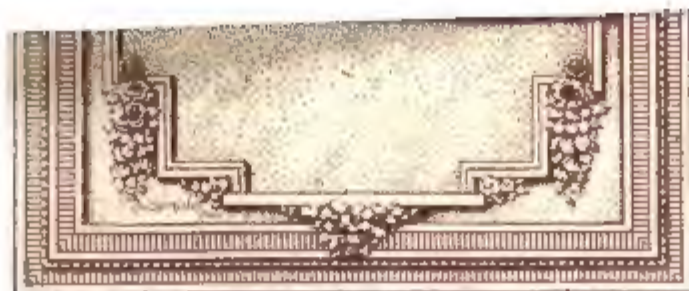
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*William Ramsey.*

## SIR WILLIAM RAMSAY

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OFFICIER LÉGION D'HONNEUR

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¶ Discovered Argon in 1894 in conjunction with Rayleigh, and Helium in 1895; Neon, Krypton and Xenon in 1898 in conjunction with Travers.





# VAN NOSTRAND'S CHEMICAL ANNUAL 1907

A HAND-BOOK OF USEFUL DATA  
FOR ANALYTICAL, MANUFACTURING, AND INVESTIGATING  
CHEMISTS, AND CHEMICAL STUDENTS

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FIRST YEAR OF ISSUE

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EDITED BY

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Chemical Analysis, by Gravimetric, Electrolytic,  
Volumetric, and Gasometric Methods"*

WITH THE COÖPERATION OF EMINENT CHEMISTS



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## PREFACE

THE amount of chemical literature published each year has steadily increased at a very rapid rate. It has become more and more difficult for the busy worker to gather from this mass of literature the facts which are of interest and use to him. Much valuable material is of little use because scattered through the literature and therefore inaccessible.

The publication of the Chemical Annual was undertaken as an attempt to overcome this difficulty, at least in part. It has been limited in its scope almost entirely to numerical data, inasmuch as other year books have not aimed to cover this field, and inasmuch as such data cannot generally be carried in the mind, but must be readily accessible for use. To republish all matter of this kind would be both unnecessary and impracticable. The attempt has been made to select and tabulate only that which is of fairly general interest and utility. The investigator in a special field would probably always prefer to go to the original source for the information he wishes. In the preparation of the Chemical Annual the attempt has been made to produce a convenient reference book of numerical data. All tables and numerical data have been quoted from the original source wherever possible, notwithstanding the labor which this work involved.

The tables useful in the calculation of analytical results were first compiled. It is believed that this portion of the Annual is quite complete and will meet all ordinary requirements. All molecular weights as well as the factors for the calculation of analytical results have been calculated from the International Atomic Weights of 1906. As most of the numbers have been calculated several times it is believed that few errors will be found. The molecular weights and other figures have been carried out further beyond the decimal point than is necessary for most calculations. It was thought that the tables would be of more general use if

each chemist were thus at liberty to round off the figures to suit the accuracy of the work in hand.

In collecting the specific gravity tables those most adapted to American practice have been selected. When the specific gravity is given in terms of the Baumé degrees, the so-called American standard as given in Table XXVII has been adhered to. Where a different Baumé scale had been used in a table the figures have been recalculated to conform with the American standard.

In the review of chemical literature, which contains more than one thousand references to journal articles, the attempt has been made to tabulate and index the important articles of the year in such a manner that the progress made during the year on any given subject will be apparent and its literature easily and quickly found. Any attempt to give a synopsis of the articles would have made the Annual very bulky, and in any case is of doubtful utility.

In a similar manner a list has been made of the most important American and foreign books on chemical subjects which have been published during the year. While the preparation of this list has been somewhat difficult it is hoped that few if any important books have been omitted. Both this list and the list of journal articles include publications from January 1, 1905, to June 1, 1906.

The expense and labor involved in the publication of a book of this kind has been found to be very considerable, so that even with the assistance of a number of contributors, whose interest and coöperation it has been found possible to enlist, the scope of the first issue of the Annual is much more limited than it had been hoped possible to make it. If the demand for such a publication justifies it, the scope of the Annual will be considerably increased in future issues.

The editor desires to express his appreciation of the interest taken and encouragement given by many chemists who did not have the time to prepare matter for publication. He is especially grateful to those whose names appear on the list of contributors and who spared neither time nor labor in the effort to make their contributions accurate and complete.

*November, 1906.*



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# CONTENTS

NO. OF TABLE	PAGE
I. INTERNATIONAL ATOMIC WEIGHTS FOR 1906 . . . . .	1
II. MENDELÉEFF'S PERIODIC SYSTEM OF THE ELEMENTS . . . . .	2
III. SPECIFIC GRAVITY OF GASES . . . . .	3
IV. PHYSICAL CONSTANTS OF THE ELEMENTS . . . . .	4
V. GRAVIMETRIC FACTORS AND THEIR LOGARITHMS . . . . .	10
VI. FACTORS FOR THE CALCULATION OF INDIRECT GRAVIMETRIC ANALYSES . . . . .	37
VII. MOLECULAR AND ATOMIC WEIGHTS AND THEIR LOGARITHMS .	39

## CALCULATION OF VOLUMETRIC ANALYSES

VIII. BASICITY OF ACIDS WITH VARIOUS INDICATORS ACCORDING TO THOMPSON . . . . .	48
IX. VALUE OF NORMAL SOLUTIONS OF ACIDS AND BASES . . . .	49
X. VALUE OF NORMAL SOLUTIONS OF OXIDIZING AND REDUCING AGENTS . . . . .	51
XI. VALUE OF NORMAL SOLUTIONS OF PRECIPITATION REAGENTS .	53
XII. PHYSICAL AND CHEMICAL CONSTANTS OF OILS . . . . .	54
XIII. PHYSICAL AND CHEMICAL CONSTANTS OF FATS AND WAXES . .	58
XIV. PHYSICAL CONSTANTS OF LUBRICATING OILS . . . . .	61
XV. PHYSICAL AND CHEMICAL CONSTANTS OF REPRESENTATIVE SAMPLES OF LUBRICATING OILS . . . . .	62
XVI. TEMPERATURE CORRECTION FOR REFRACTIVE INDICES OF OILS	64
XVII. TEMPERATURE CORRECTION FOR SPECIFIC GRAVITY OF OILS .	64
XVIII. CONVERSION OF ACID VALUE INTO OLEIC ACID . . . . .	64
XIX. CONVERSION OF BUTYRO-REFRACTOMETER READINGS TO INDICES OF REFRACTION . . . . .	65

## CALCULATION OF GAS ANALYSES

XX. REDUCTION OF GAS VOLUMES TO 0° AND 760 MM. . . . .	66
XXI. CORRECTIONS OF BAROMETER READINGS FOR TEMPERATURE .	68
XXII. COEFFICIENT OF EXPANSION OF GASES . . . . .	69
XXIII. DENSITY OF NITROGEN . . . . .	70
XXIV. LOGARITHMS . . . . .	73
XXV. PHYSICAL CONSTANTS OF INORGANIC COMPOUNDS . . . . .	93
XXVI. PHYSICAL CONSTANTS OF ORGANIC COMPOUNDS . . . . .	210

## SPECIFIC GRAVITY TABLES

NO. OF TABLE		PAGE
XXVII(a).	EQUIVALENT OF DEGREES BAUMÉ (AMERICAN STANDARD) AND SPECIFIC GRAVITY AT 60° F. FOR LIQUIDS HEAVIER THAN WATER . . . . .	328
XXVII(b)	EQUIVALENT BAUMÉ DEGREES (AMERICAN STANDARD) WITH SPECIFIC GRAVITY AT 60° F. FOR LIQUIDS LIGHTER THAN WATER . . . . .	332
XXVIII.	SULPHURIC ACID. FERGUSON AND TALBOT . . . . .	337
XXIX.	FUMING SULPHURIC ACID AT 20°. WINKLER . . . . .	342
XXX.	SULPHURIC ACID. LUNGE AND ISLER . . . . .	344
XXXI.	FUMING SULPHURIC ACID. GNEHM. . . . .	347
XXXII.	NITRIC ACID AT 15°. FERGUSON . . . . .	348
XXXIII.	NITRIC ACID AT 15°. LUNGE AND REY . . . . .	350
XXXIV.	HYDROCHLORIC ACID. FERGUSON . . . . .	352
XXXV.	HYDROCHLORIC ACID. LUNGE AND MARCHLENSKI . . . . .	354
XXXVI.	ACETIC ACID AT 15°. OUDEMANS . . . . .	355
XXXVII.	PHOSPHORIC ACID AT 17.5°. HAGER. . . . .	356
XXXVIII.	AQUA AMMONIA. FERGUSON . . . . .	357
XXXIX.	SODIUM HYDROXIDE AT 15°. LUNGE . . . . .	359
XL.	POTASSIUM HYDROXIDE AT 15°. LUNGE . . . . .	360
XLI.	SODIUM CARBONATE AT 15°. LUNGE . . . . .	362
XLII.	CONCENTRATED SODIUM CARBONATE SOLUTION AT 30°. LUNGE . . . . .	363
XLIII.	CORRECTION OF SPECIFIC GRAVITY OF SODIUM CARBONATE FOR $\pm 1^\circ$ C. LUNGE. . . . .	363
XLIV.	POTASSIUM CARBONATE SOLUTION AT 15°. CALCULATED FROM GERLACH . . . . .	364
XLV.	SPECIFIC GRAVITY AND PERCENTAGE OF ALCOHOL BY VOLUME. SQUIBB . . . . .	365
XLVI.	PERCENTAGE OF ALCOHOL BY VOLUME AND BY WEIGHT. GILPIN, DRINKWATER, AND SQUIBB . . . . .	366
XLVII.	METHYL ALCOHOL AT 15.56°. DITTMAR AND FAWSITT . . . . .	372
XLVIII.	SPECIFIC GRAVITY OF AQUEOUS SOLUTIONS OF PURE GLYCERENE. GERLACH AND SKALWEIT . . . . .	373
XLIX.	AMMONIUM SULPHATE SOLUTION AT 19°. SCHIFF . . . . .	374
L.	AMMONIUM CHLORIDE SOLUTION AT 15°. GERLACH . . . . .	375
LI.	AVAILABLE CHLORINE IN BLEACHING POWDER SOLUTION AT 15°. LUNGE AND BACHOFFEN . . . . .	375
LII.	CUPRIC CHLORIDE SOLUTION AT 17.5°. FRANZ . . . . .	375
LIII.	CUPRIC SULPHATE SOLUTION AT 18° . . . . .	376
LIV.	FERRIC CHLORIDE SOLUTION AT 17.5°. FRANZ . . . . .	376
LV.	FERROUS SULPHATE AT 15°. GERLACH . . . . .	377
LVI.	FERRIC SULPHATE AT 18°. HAGER . . . . .	377
LVII.	POTASSIUM CHROMATE SOLUTION AT 19.5°. SCHIFF. . . . .	378

# CONTENTS

ix

NO. OF TABLE		PAGE
LVIII.	POTASSIUM DICHROMATE SOLUTION AT 19.5°. KREMERS AND GERLACH . . . . .	378
LIX.	SODIUM CHLORIDE SOLUTION AT 15°. GERLACH . . . . .	378
LX.	SODIUM DICHROMATE SOLUTION. STANLEY . . . . .	379
LXI.	STANNIC CHLORIDE SOLUTION AT 15°. GERLACH . . . . .	379
LXII.	STANNOUS CHLORIDE SOLUTION AT 15°. GERLACH . . . . .	380
LXIII.	ZINC, CADMIUM, AND LITHIUM CHLORIDE AT 19.5°. KRAMER . . . . .	380
LXIV.	ZINC SULPHATE SOLUTION AT 15° . . . . .	380
LXV.	DENSITY OF WATER AT 0° TO 36°. THIESEN, SCHEEL, AND DIESSELHORST . . . . .	381
LXVI.	DENSITY OF WATER AT 30° TO 102°. THIESEN . . . . .	382
LXVII.	DENSITY OF WATER AT 100° TO 320°. RAMSAY, YOUNG, WATERSTON, AND HIRN . . . . .	382
LXVIII.	VOLUME OF ONE GRAM OF WATER AT 0° TO 36°. THIESEN, SCHEEL, AND DIESSELHORST . . . . .	383
LXIX.	VOLUME OF ONE GRAM OF WATER AT 30° TO 102°. THIESEN . . . . .	384
LXX.	VOLUME OF ONE GRAM OF WATER AT 100° TO 320°. RAMSAY, YOUNG, WATERSTON, AND HIRN . . . . .	384
LXXI.	TENSION OF WATER VAPOR OVER ICE AT - 50° TO 0°. JUHLIN AND MARVIN . . . . .	385
LXXII.	TENSION OF WATER VAPOR OVER WATER AT - 20° TO 0°. REGNAULT, BROCH, AND JUHLIN . . . . .	385
LXXIII.	TENSION OF WATER VAPOR OVER WATER AT - 2° TO 36°. REGNAULT, BROCH, AND WEIHE . . . . .	386
LXXIV.	TENSION OF WATER VAPOR OVER WATER AT 30° TO 230°. REGNAULT, BROCH, AND WEIHE . . . . .	387
LXXV.	VAPOR PRESSURE OF WATER AT 0° TO 229°. REGNAULT. . . . .	388
LXXVI.	BOILING POINT OF WATER AT 680 TO 800 MM. PRESSURE. REGNAULT, BROCH, AND WEIHE . . . . .	391
LXXVII.	VAPOR TENSION OF MERCURY AT 40° TO 520°. RAMSAY AND YOUNG . . . . .	392
LXXVIII.	VAPOR TENSION OF MERCURY AT 400° TO 880°. CAILLETET, CORLARDEAU, AND RIVIÈRE . . . . .	392

## EQUIVALENTS OF WEIGHTS AND MEASURES

LXXIX.	FUNDAMENTAL EQUIVALENTS OF METRIC AND U.S. WEIGHTS AND MEASURES . . . . .	394
LXXX.	COMPARISON OF METRIC AND CUSTOMARY (U. S.) UNITS FROM 1 TO 10 . . . . .	395
LXXXI.	CONVERSION OF METRIC TO BRITISH IMPERIAL WEIGHTS AND MEASURES . . . . .	401
LXXXII.	CONVERSION OF BRITISH IMPERIAL TO METRIC WEIGHTS AND MEASURES . . . . .	403



## THERMOCHEMISTRY

NO. OF TABLE		PAGE
LXXXIII.	THERMOCHEMICAL UNITS . . . . .	405
LXXXIV.	HEAT OF COMBUSTION OF VARIOUS SUBSTANCES . . .	406
LXXXV.	CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF ANTHRACITE COAL . . . . .	408
LXXXVI.	CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF BITUMINOUS COAL . . . . .	409
LXXXVII.	CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF OVEN COKES. . . . .	410
LXXXVIII.	CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF LIGNITE . . . . .	411
LXXXIX.	CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF WOOD . . . . .	412
XC.	CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF PETROLEUM . . . . .	412
XCI.	CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF NATURAL GAS . . . . .	413
XCII.	CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF COAL GAS . . . . .	414
XCIII.	CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF WATER GAS . . . . .	415

## REVIEW OF CHEMICAL LITERATURE

A LIST OF THE MORE IMPORTANT ARTICLES WHICH HAVE BEEN PUB- LISHED SINCE JAN. 1, 1905 . . . . .	417
ANALYTICAL CHEMISTRY . . . . .	419
GENERAL INORGANIC CHEMISTRY . . . . .	431
INDUSTRIAL CHEMISTRY . . . . .	438
ORGANIC CHEMISTRY . . . . .	443
PHYSICAL CHEMISTRY . . . . .	450
RADIOACTIVITY . . . . .	462

## NEW BOOKS

A LIST OF THE MORE IMPORTANT BOOKS WHICH HAVE BEEN PUB- LISHED SINCE JAN. 1, 1905 . . . . .	465
AMERICAN AND ENGLISH BOOKS . . . . .	465
FOREIGN BOOKS, MOSTLY GERMAN. . . . .	474

# I. — INTERNATIONAL ATOMIC WEIGHTS

## FOR 1906 \*

O = 16

Name.	Symbol.	Atomic Weight.	Name.	Symbol.	Atomic Weight.
Aluminium . . . . .	Al	27.1	Neodymium . . . . .	Nd	143.6
Antimony . . . . .	Sb	120.2	Neon . . . . .	Ne	20
Argon . . . . .	A	39.9	Nickel . . . . .	Ni	58.7
Arsenic . . . . .	As	75.0	Nitrogen . . . . .	N	14.04
Barium . . . . .	Ba	137.4	Osmium . . . . .	Os	191
Bismuth . . . . .	Bi	208.5	Oxygen . . . . .	O	16.00
Boron . . . . .	B	11.0	Palladium . . . . .	Pd	106.5
Bromine . . . . .	Br	79.96	Phosphorus . . . . .	P	31.0
Cadmium . . . . .	Cd	112.4	Platinum . . . . .	Pt	194.8
Caesium . . . . .	Cs	132.9	Potassium . . . . .	K	39.15
Calcium . . . . .	Ca	40.1	Praseodymium . . . . .	Pr	140.5
Carbon . . . . .	C	12.00	Radium . . . . .	Ra	225
Cerium . . . . .	Ce	140.25	Rhodium . . . . .	Rh	103.0
Chlorine . . . . .	Cl	35.45	Rubidium . . . . .	Rb	85.5
Chromium . . . . .	Cr	52.1	Ruthenium . . . . .	Ru	101.7
Cobalt . . . . .	Co	59.0	Samarium . . . . .	Sm	150.3
Columbium . . . . .	Cb	94	Scandium . . . . .	Sc	44.1
Copper . . . . .	Cu	63.6	Selenium . . . . .	Se	79.2
Erbium . . . . .	Er	166	Silicon . . . . .	Si	28.4
Fluorine . . . . .	F	19	Silver . . . . .	Ag	107.93
Gadolinium . . . . .	Gd	156	Sodium . . . . .	Na	23.05
Gallium . . . . .	Ga	70	Strontium . . . . .	Sr	87.6
Germanium . . . . .	Ge	72.5	Sulphur . . . . .	S	32.06
Glucinum . . . . .	Gl	9.1	Tantalum . . . . .	Ta	183
Gold . . . . .	Au	197.2	Tellurium . . . . .	Te	127.6
Helium . . . . .	He	4	Terbium . . . . .	Tb	160
Hydrogen . . . . .	H	1.008	Thallium . . . . .	Ti	204.1
Indium . . . . .	In	115	Thorium . . . . .	Th	232.5
Iodine . . . . .	I	126.97	Thulium . . . . .	Tm	171
Iridium . . . . .	Ir	193.0	Tin . . . . .	Sn	119.0
Iron . . . . .	Fe	55.9	Titanium . . . . .	Ti	48.1
Krypton . . . . .	Kr	81.8	Tungsten . . . . .	W	184
Lanthanum . . . . .	La	138.9	Uranium . . . . .	U	238.5
Lead . . . . .	Pb	206.9	Vanadium . . . . .	V	51.2
Lithium . . . . .	Li	7.03	Xenon . . . . .	Xe	128
Magnesium . . . . .	Mg	24.36	Ytterbium . . . . .	Yb	173.0
Manganese . . . . .	Mn	55.0	Yttrium . . . . .	Yt	89.0
Mercury . . . . .	Hg	200.0	Zinc . . . . .	Zn	65.4
Molybdenum . . . . .	Mo	96.0	Zirconium . . . . .	Zr	90.6

\* Compiled by the International Committee on Atomic Weights consisting of F. W. Clarke, K. Seubert, H. Moissan, and T. E. Thorpe.

## II.—MENDELÉEFF'S PERIODIC SYSTEM OF THE ELEMENTS

Zero Group.	Group I.	Group II.	Group III.	Group IV.	Group V.	Group VI.	Group VII.	
0 $\alpha$								
1 $y$	H=1.008							
2 He=4.0	Li=7.03	Gl=9.1	B=11.0	C=12.00	N=14.04	O=16.00	F=19	
3 Ne=20.	Na=23.05	Mg=24.36	Al=27.1	Si=28.4	P=31.0	S=32.06	Cl=35.45	
4 A=39.9	K=39.15	Ca=40.1	Sc=44.1	Ti=48.1	V=51.2	Cr.=52.1	Mn=55.0	Fe=55.9 Co=59.0 Ni=58.7 (Cu)
5	Cu=63.6	Zn=65.4	Ga=70	Ge=72.5	As=75.0	Se=79.2	Br=79.96	Ru=101.7 Rh=103 Pd=106.5 (Ag)
6 Kr=81.8	Rb=85.5	Sr=87.6	Y=89.0	Zr=90.6	Cb=94	Mo=96.0		
7	Ag=107.93	Cd=112.4	In=115	Sn=119.0	Sb=120.2	Te=127.6	I=126.97	
8 Xe=128	Cs=132.9	Ba=137.4	La=138.9	Ce=140.25	—	—	—	
9	—	—	—	—	—	—	—	
10	—	—	Yb=173.0	—	Ta=183	W=184	—	Os=191 Ir=193.0 Pt=194.8 (Au)
11	Au=197.2	Hg=200.0	Tl=204.1	Pb=206.9	Bi=208.5	—	—	
12		Ra=225	Th=232.5	—	—	U=238.5	—	

### III. — SPECIFIC GRAVITY OF GASES\*

Name.	Formula.	Molecular Weight.	Specific Gravity, Air = 1.		Weight in Grams of 1 Liter at 0°, 760 mm. at Sea Level, lat. 45°.
			Calculated.	Observed.	
Acetylene.....	C <sub>2</sub> H <sub>2</sub> .....	26.016	0.8988	0.92	1.1620
Air.....			1.0000		1.29330
Ammonia.....	NH <sub>3</sub> .....	17.064	0.5895	0.5971	0.7621
Argon.....	A.....	39.9	1.379	1.379	1.7828
Arsine.....	AsH <sub>3</sub> .....	78.024	2.696	2.695	3.485
Bromine.....	Br <sub>2</sub> .....	159.92	5.5249	5.524(227.9°)	7.1426
Butane.....	C <sub>4</sub> H <sub>10</sub> .....	58.08	2.0065	2.01	2.594
Carbon dioxide....	CO <sub>2</sub> .....	44.00	1.5201	1.52909	1.9652
Carbon monoxide..	CO.....	28.00	0.9673	0.96716	1.2506
Carbon oxysulphide	COS.....	60.06	2.0749	2.1046	2.6825
Chlorine.....	Cl <sub>2</sub> .....	70.90	2.489	2.491	3.1666
Cyanogen.....	C <sub>2</sub> N <sub>2</sub> .....	52.08	1.7993	1.8064	2.3261
Ethane.....	C <sub>2</sub> H <sub>6</sub> .....	30.048	1.0381	1.075	1.3421
Ethylene.....	C <sub>2</sub> H <sub>4</sub> .....	28.032	0.9784	0.9852	1.2520
Fluorine.....	F <sub>2</sub> .....	38.0	1.313	1.26	1.697
Helium.....	He.....	4	0.1382	0.1368	0.1787
Hydrobromic acid..	HBr.....	80.968	2.7973	2.71	3.6163
Hydrochloric acid..	HCl.....	36.458	1.2595	1.2692	1.6283
Hydrofluoric acid..	HF.....	20.008	0.691	0.7126	0.894
Hydroiodic acid....	HI.....	127.98	4.4172	4.3757	5.7106
Hydrogen.....	H <sub>2</sub> .....	2.016	0.06965	0.06960	0.089873
Hydrogen selenide..	H <sub>2</sub> Se.....	81.216	2.806	2.795	3.627
Hydrogen sulphide..	H <sub>2</sub> S.....	34.076	1.1773	1.1895	1.5230
Hydrogen telluride..	H <sub>2</sub> Te.....	129.62	4.478	4.489	5.789
Krypton.....	Kr.....	81.8	2.826	2.818	3.654
Methane.....	CH <sub>4</sub> .....	16.032	0.5539	0.5576	0.7160
Neon.....	Ne.....	20.	0.691	0.674	0.893
Nitric oxide.....	NO.....	30.04	1.0378	1.0367	1.3402
Nitrous oxide.....	N <sub>2</sub> O.....	44.08	1.5229	1.5301	1.9688
Nitrogen.....	N <sub>2</sub> .....	28.08	0.9701	0.96737	1.2542
atmospheric....	N <sub>2</sub> + A etc.			0.97209	1.25718
Nitrogen dioxide... "	NO <sub>2</sub> .....	46.04	1.5906	1.60 (135°)	2.0563
" " " " " " " "	N <sub>2</sub> O <sub>4</sub> .....	92.08	3.1812	2.65 (26.7°)	4.1126
Nitrosyl chloride..	NOCl.....	65.49	2.2625	2.31	2.925
Oxygen.....	O <sub>2</sub> .....	32.00	1.1055	1.10535	1.4290
Phosphine.....	PH <sub>3</sub> .....	34.024	1.175	1.214	1.520
Propylene.....	C <sub>3</sub> H <sub>6</sub> .....	42.048	1.4527	1.498	1.8780
Silicon fluoride....	SiF <sub>4</sub> .....	104.4	3.607	3.60	4.663
Sulphur dioxide....	SO <sub>2</sub> .....	64.06	2.2131	2.2639	2.8611
Xenon.....	X.....	128	4.422	4.422	5.717

\* A considerable portion of this table is quoted from Landolt-Börnstein Phys.-Chem. Tabellen, 1905, p. 222.

# IV. — PHYSICAL CONSTANTS

Number.	Name.	Sym- bol.	Atomic Weight. O = 16.	Molecu- lar Weight.	Specific Gravity. Water = 1. Air = 1 (A). Hydrogen = 1 (D).	Atomic Vol. At. Wt. Sp. Gr.	Specific Heat at 0° C.
1	Aluminium . . . . .	Al	27.1	.....	2.583 <sup>40</sup>	10.5	.2220
2	Antimony . . . . .	Sb	120.2	.....	6.62	18.2	.0495
3	Argon, gas . . . . .	A	39.9	39.9	{ 1.379 A. 19.96 D.	.....	.1233
4	liquid . . . . .	A	39.9	.....	1.4046— <sup>186°</sup>	28.5	.....
5	Arsenic, amorph. . . . .	As	75.0	300	4.716 <sup>140</sup>	15.9	.0758 { 21°—
6	cryst. . . . .	As	75.0	300	5.727 <sup>140</sup>	13.2	.0830 { 65°
7	Barium . . . . .	Ba	137.4	.....	3.75	36.7	.....
8	Bismuth . . . . .	Bi	208.5	.....	9.7474	21.4	.03013
9	Boron, amorph. . . . .	B	11.0	.....	2.45	4.5	.3066
10	cryst. . . . .	B	11.0	.....	2.53—2.68	4.2	.....
11	Bromine, gas . . . . .	Br <sub>2</sub>	79.96	159.92	5.8691 <sup>60°</sup> A.	.....	.0555(83°)
12	liquid . . . . .	Br <sub>2</sub>	79.96	159.92	3.1883 <sup>0°</sup>	25	.1071
13	Cadmium . . . . .	Cd	112.4	112.4	8.642 <sup>17°</sup>	13	.0548
14	Caesium . . . . .	Cs	132.9	.....	2.366	56	.04817
15	Calcium . . . . .	Ca	40.1	.....	1.5446 <sup>29.2°</sup>	26	.1804
16	Carbon, amorph. . . . .	C	12.00	.....	1.75—2.10	6.0	.241
17	graphite . . . . .	C	12.00	.....	2.10—2.585	5.	.202
18	diamond . . . . .	C	12.00	.....	3.47—3.5585	3.4	.1469
19	Cerium . . . . .	Ce	140.25	.....	7.0424	20	.04479
20	Chlorine, gas . . . . .	Cl	35.45	70.90	2.491 <sup>0°</sup> A.	.....	.1241
21	liquid . . . . .	Cl	35.45	.....	1.4405 <sup>0°</sup>	24.6	.2262
22	Chromium . . . . .	Cr	52.1	.....	6.92 <sup>20</sup>	7.6	.10394
23	Cobalt. . . . [bium) . . . . .	Co	59.0	.....	8.718 <sup>24°</sup>	6.8	.1030
24	Columbium (Nio- . . . . .	Cb	94.0	.....	7.06 <sup>48°</sup>	13.3	.....
25	Copper . . . . .	Cu	63.6	.....	8.91—8.96	7.1	.0936
26	Erbium . . . . .	Er	166	.....	4.77	34.8	.....
27	Fluorine, gas . . . . .	F	19	38	1.31 <sup>15°</sup> A.	.....	.....
28	liquid . . . . .	F	19	38	1.14— <sup>187°</sup>	16.7	.....
29	Gadolinium . . . . .	Gd	156	.....	1.31	119.1	.....
30	Gallium . . . . .	Ga	70	.....	5.95 <sup>24°</sup>	11.8	.079
31	Germanium . . . . .	Ge	72.5	.....	5.469 <sup>18</sup>	13.3	.0737
32	Glucinum (Beryl- . . . . .	Gl	9.1	.....	1.85 <sup>20°</sup> A.	4.9	.....
33	Gold. . . . . [lium) . . . . .	Au	197.2	.....	19.32	10.2	.0316
34	Helium, gas . . . . .	He	4	4	{ 0.1368 A 1.98 D.	.....	.....

\* K — the number of grams of water which can be raised from 0° to 1° C. by the heat which passes through a cubic centimeter of the substance in one.



OF THE ELEMENTS

Number.	At. Heat Sp. Heat × At. Wt.	Electrical Conduc- tivity at 0° C.	Thermal Conductivity K* at 0° C. Ag = 1.00.	Linear Coefficient of Expansion.		Melting Point, °C.	Boiling Point, °C.
					At °C.		
1	6.02	324000	.3435	.0,2313	40°	657°	1470–1700°
2	5.95	27100	.0442	.0,1152	40°	630°	1500–1700
3	4.92	.....	.0,3894	.....	.....	–187.9°	–186.1°
4	.....	.....	.....	.....	.....	.....	.....
5	5.69	28600	.....	.0,0559	40°	.....	< 360°
6	6.23	.....	.....	.....	.....	sublimes at	449½°
7	.....	.....	.....	.....	.....	850°	vol. 950°
8	6.28	9260	.0177	.0,1346	40°	269°	1435°
9	3.37	.....	.....	.....	.....	infusible	sublimes at 3500°
10	.....	.....	.....	.....	.....	infusible	
11	4.44	.....	.....	.....	.....	.....	.....
12	8.57	.....	.....	.....	.....	–7.3°	59°
13	6.16	146000	.2213	.0,3069	40°	321.7°	778°
14	6.41	25400	.....	.0,39482	27–100°	26.37°	670°
15	7.23	95000	.....	.....	.....	780–810°	.....
16	2.89	.....	.....	.0,054	40°	sublimes	3500°
17	2.22	.....	.....	.0,0786	40°	sublimes	3500°
18	1.76	.....	.....	.0,0118	40°	sublimes	3500°
19	6.28	.....	.....	.....	.....	623°	.....
20	4.40	.....	.....	.....	.....	–102°	–33.6°
21	8.02	.....	.....	.0,1978	0–10°	.....	.....
22	5.42	.....	.....	.....	.....	1515°	.....
23	6.08	83200	.....	.0,1236	40°	1530°	.....
24	.....	.....	.....	.....	.....	1950°	.....
25	5.95	640600	.7198	.0,1678	40°	1084° 1065°(in air)	2100°
26	.....	.....	.....	.....	.....		
27	.....	.....	.....	.....	.....	–223°	–187°
28	.....	.....	.....	.....	.....	–223°	–187°
29	.....	.....	.....	.....	.....	.....	.....
30	5.53	.....	.....	.....	.....	30.15°	.....
31	5.34	.....	.....	.....	.....	900°	vol. 1350°
32	.....	.....	.....	.....	.....	> 960°	.....
33	6.23	468000	.7003	.0,1470	0–100°	1065°	.....
34	.....	.....	.0,3386	.....	.....	< –271.3°	–267

second when the temperature of the opposite sides of the cube are maintained at a difference of 1° C.

Number.	Name.	Sym- bol.	Atomic Weight. O = 16.	Molecu- lar Weight.	Specific Gravity. Water = 1. Air = 1 (A). Hydrogen = 1 (D).	Atomic Vol. At. Wt. Sp. Gr.	Specific Heat at 0° C.
1	Hydrogen, gas . . .	H	1.008	2.016	0.06949 A.	.....	3.410
2	liquid . . . . .	H	1.008	2.016	0.700 <sup>-252.5°</sup>	1.4	6.
3	Indium . . . . .	In	115	.....	7.12 <sup>2</sup>	16.1	.05695
4	Iodine, gas . . . . .	I	126.97	.....	8.72 A.	.....	.0336 <sup>200°</sup>
5	solid . . . . .	I	126.97	253.94	4.948 <sup>17°</sup>	25.7	.05412
6	Iridium, spongy..	Ir	193.0	.....	15.86	12.2	.....
7	crystalline . . . .	Ir	193.0	.....	22.42	8.6	.0323
8	Iron, pure . . . . .	Fe	55.9	.....	7.85-7.88	7.1	.1162
9	wrought . . . . .	Fe	55.9	.....	7.86	7.1	.1130
10	steel . . . . .	Fe	55.9	.....	7.60-7.80	7.3	.1066
11	gray pig . . . . .	Fe	55.9	.....	7.03-7.13	7.9	.....
12	white pig . . . . .	Fe	55.9	.....	7.58-7.73	7.3	.1050
13	Krypton, gas . . .	Kr	81.8	81.8	{ 2.818 A. 40.78 D.	.....	.....
14	liquid . . . . .	Kr	81.8	.....	2.155 <sup>-152°</sup>	37.9	.....
15	Lanthanum . . . . .	La	138.9	.....	6.1545	22.6	.04485
16	Lead . . . . .	Pb	206.9	.....	11.34	18.2	.0310
17	Lithium . . . . .	Li	7.03	.....	0.5936	12	.9408
18	Magnesium . . . . .	Mg	24.36	.....	1.69-1.75	14.3	.2456
19	Manganese . . . . .	Mn	55.0	.....	7.42	7.4	.1217
20	Mercury . . . . .	Hg	200.0	200.0	13.5953 <sup>2</sup>	14.7	.03346
21	Molybdenum . . . .	Mo	96.0	.....	8.6-9.01	10.9	.0659
22	Neodymium . . . . .	Nd	143.6	.....	6.9563	20.6	.....
23	Neon . . . . .	Ne	20	.....	{ 0.674 A. 9.96 D.	.....	.....
24	Nickel . . . . .	Ni	58.7	.....	8.6-8.93	6.7	.1084
25	Nitrogen, gas . . .	N	14.04	28.08	0.96737 A.	.....	.2438
26	liquid . . . . .	N	14.04	.....	0.8042 <sup>-195.5°</sup>	17.5	.....
27	Osmium . . . . .	Os	191	.....	22.48	8.5	.03113
28	Oxygen, gas . . . .	O	16	32	1.10535 A.	.....	.2175
29	liquid . . . . .	O	16	32	1.1181 <sup>-182.5°</sup>	14.3	.....
30	Ozone . . . . .	O <sub>3</sub>	.....	48	1.658 A.	.....	.....
31	Palladium . . . . .	Pd	106.5	.....	11.4-11.9	9.2	.0592
32	Phosphorous, yel.	P	31	124	1.8232 <sup>20°</sup>	17.2	.202
33	red . . . . .	P	31	124	2.11	14.7	.16981
34	liquid . . . . .	P	31	.....	1.764 <sup>44.3°</sup>	.....	.....
35	Platinum . . . . .	Pt	194.8	.....	21.48 <sup>17.6°</sup>	9.2	.0323
36	Potassium . . . . .	K	39.15	.....	0.875 <sup>13°</sup>	44.7	.1662
37	Praseodymium . . .	Pr	140.5	.....	6.4754	21.6	.....
38	Radium . . . . .	Ra	225	.....	.....	.....	.....
39	Rhodium . . . . .	Rh	103.0	.....	12.1	8.5	.05803
40	Rubidium . . . . .	Rb	85.5	.....	1.522 <sup>15°</sup>	56.3	.....



Number.	Name.	Sym- bol.	Atomic Weight. O = 16.	Molecu- lar Weight.	Specific Gravity. Water = 1. Air = 1 (A) Hydrogen = 1 (D).	Atomic Vol. At. Wt. Sp. Gr.	Specific Heat at 0° C.
1	Ruthenium, spon.	Ru	101.7	.....	8.6	11.8	.....
2	melted.....	Ru	101.7	.....	11.4	8.9	.....
3	cryst.....	Ru	101.7	.....	12.26°	8.3	.0611
4	Samarium.....	Sm	150.3	.....	7.7-7.8	19.4	.....
5	Scandium.....	Sc	44.1	.....	.....	.....	.....
6	Selenium, amorph.	Se	79.2	633.6	4.26-4.28 <sup>25°</sup>	18.5	.09533
7	monoclinic....	Se	79.2	633.6	4.47 <sup>25°</sup>	17.7	.08401
8	hexagonal....	Se	79.2	633.6	4.8 <sup>25°</sup>	16.5	.....
9	Silicon, amorph..	Si	28.4	.....	2.00	14.2	.....
10	cryst.....	Si	28.4	.....	2.49 <sup>10°</sup>	11.4	.1697 <sup>22°</sup>
11	Silver.....	Ag	107.93	.....	10.53	10.2	.0559
12	Sodium.....	Na	23.05	.....	0.9735 <sup>13.5°</sup>	23.7	.2934
13	Strontium.....	Sr	87.6	.....	2.54	34.5	.....
	Sulphur,						
14	amorphous soft	S	32.06	256.48	1.9556 <sup>0°</sup>	16.4	.....
15	“ yellow	S	32.06	256.48	2.046	15.6	.....
16	rhombic.....	S <sub>α</sub>	32.06	256.48	2.05-2.07 <sup>0°</sup>	15.6	.163
17	monoclinic....	S <sub>β</sub>	32.06	256.48	1.958	16.4	.....
18	plastic.....	S <sub>γ</sub>	32.06	256.48	1.92	16.7	.....
19	Tantalum.....	Ta	183	.....	12.79	143	.....
20	Tellurium, amorp.	Te	127.6	255.2	6.015 <sup>20°</sup>	21.2	.....
21	cryst.....	Te	127.6	255.2	6.27	20.4	.0475
22	Terbium.....	Tb	160	.....	.....	.....	.....
23	Thallium.....	Tl	204.1	.....	11.85	17.2	.0326
24	Thorium, amorph.	Th	232.5	.....	11.00 <sup>17°</sup>	21.1	.....
25	cryst.....	Th	232.5	.....	11.23	20.7	.....
26	Thulium.....	Tm	171	.....	.....	.....	.....
27	Tin, gray.....	Sn	119.0	.....	5.8466 <sup>15°</sup>	20.3	.0545
28	rhombic.....	Sn	119.0	.....	6.53-6.56	18.2	.0559
29	tetragonal....	Sn	119.0	.....	7.2984 <sup>15°</sup>	16.3	.0559
30	Titanium.....	Ti	48.1	.....	3.543	13.6	.1125
31	Tungsten.....	W	184	.....	18.77	9.8	.0336
32	Uranium.....	U	238.5	.....	18.685 <sup>13°</sup>	12.8	.0280
33	Vanadium.....	V	51.2	.....	5.87 <sup>15°</sup>	8.7	.1153
34	Xenon, gas.....	Xe	128	.....	{ 4.422 A. 63.5 D	.....	.....
35	liquid.....	Xe	128	.....	3.52-109.1°	49.1	.....
36	Ytterbium.....	Yb	173.0	.....	.....	.....	.....
37	Yttrium.....	Yt	89.0	.....	3.80 <sup>15°</sup>	23.4	.....
38	Zinc.....	Zn	65.4	.....	7.142 <sup>16°</sup>	9.2	.09356
39	Zirconium, amorp.	Zr	90.6	.....	4.15	21.8	.....
40	cryst.....	Zr	90.6	.....	5.3	17.1	.0660

Number.	At. Heat Sp. Heat X At. Wt.	Electrical Conduc- tivity at 0° Wt.	Thermal Conductivity K* at 0° C. Ag = 1.00.	Linear Coefficient of Expansion.		Melting Point, °C.	Boiling Point, °C.
					At °C.		
1	.....	.....	.....	.....	.....	> 1950°	.....
2	.....	.....	.....	.....	.....	2000°	.....
3	6.21	.....	.....	.0,0963	40°	2000°	.....
4	.....	.....	.....	.....	.....	.....	.....
5	.....	.....	.....	.....	.....	.....	.....
6	7.55	.....	.....	.....	.....	50°	690°
7	6.65	.....	.....	.0,3680	40°	170°-180°	690°
8	.....	.....	.....	.....	.....	217°	690°
9	.....	.....	.....	.....	.....	.....	3500°
10	4.82	200-15600	.....	.0,0763	40°	1200°	3500°
11	6.04	681200	1.000	.0,1921	40°	961.5°	2050°
12	6.76	211000	.365	.0,72	0°-50°	97.6°	877.5°
13	.....	40300	.....	.....	.....	900°	.....
14	.....	.....	.....	.....	.....	> 120°	444.6°
15	.....	.....	.....	.....	.....	.....	444.6°
16	5.23	.....	.....	.0,6413	40°	114.5°	444.6°
17	.....	.....	.....	.....	.....	119.25°	444.6°
18	.....	.....	.....	.....	.....	.....	444.6°
19	.....	60600	.....	.0,08	.....	2250°	.....
20	.....	.....	.....	.0,1675	40°	446°	1390°
21	6.07	46600	.....	.0,3440	0°-20°	452°	1390°
22	.....	.....	.....	.....	.....	.....	.....
23	6.65	56800	.....	.0,3021	40°	301.7°	1600-1800
24	.....	.....	.....	.....	.....	.....	.....
25	.....	.....	.....	.....	.....	.....	.....
26	.....	.....	.....	.....	.....	.....	.....
27	6.49	.....	.....	.....	.....	stable < 20°	.....
28	6.65	.....	.....	.....	.....	stable > 170°	.....
29	6.65	76600	.1528	.0,2234	40°	232°	1450-1600
30	5.41	.....	.....	.....	.....	3000°	.....
31	6.18	.....	.....	.....	.....	1700°	.....
32	6.68	.....	.....	.....	.....	800°	.....
33	5.90	.....	.....	.....	.....	1680°	.....
34	.....	.....	.....	.....	.....	-140°	-109.1°
35	.....	.....	.....	.....	.....	.....	.....
36	.....	.....	.....	.....	.....	.....	.....
37	.....	.....	.....	.....	.....	.....	.....
38	6.12	186000	.2653	.0,2918	40°	419°	918°
39	.....	.....	.....	.....	.....	1500°	.....
40	5.98	.....	.....	.....	.....	.....	.....

# V.—GRAVIMETRIC FACTORS AND THEIR LOGARITHMS

A	Weighed or Found.	Required.	A*		B†	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Aluminium,</b> Al=27.1						
Al <sub>2</sub> O <sub>3</sub> .....	Al.....	Al.....	0.53033	I.72455	1.88561	0.27545
	Al <sub>4</sub> C <sub>3</sub> .....	Al <sub>4</sub> C <sub>3</sub> .....	0.70646	I.84909	1.41550	0.15091
	AlCl <sub>3</sub> .....	AlCl <sub>3</sub> .....	2.61155	0.41690	0.38291	I.58310
	AlPO <sub>4</sub> .....	AlPO <sub>4</sub> .....	2.38943	0.37829	0.41851	I.62171
	Al <sub>2</sub> (SO <sub>4</sub> ).....	Al <sub>2</sub> (SO <sub>4</sub> ).....	3.35010	0.52506	0.29850	I.47494
	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O...	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O...	6.52348	0.81446	0.15330	I.18554
	K <sub>2</sub> SO <sub>4</sub> .Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . 24H <sub>2</sub> O.....	K <sub>2</sub> SO <sub>4</sub> .Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . 24H <sub>2</sub> O.....	9.28737	0.96786	0.10769	I.03214
	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . 24H <sub>2</sub> O.....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . 24H <sub>2</sub> O.....	8.87460	0.94815	0.12682	I.05185
AlPO <sub>4</sub> .....	Al.....	Al.....	0.22195	I.34625	4.5056	0.65375
	Al <sub>2</sub> O <sub>3</sub> .....	Al <sub>2</sub> O <sub>3</sub> .....	0.41851	I.62171	2.3894	0.37829
CaF <sub>2</sub> .....	AlF <sub>3</sub> .....	AlF <sub>3</sub> .....	0.71790	I.85606	1.3930	0.14394
P <sub>2</sub> O <sub>5</sub> .....	AlPO <sub>4</sub> .....	AlPO <sub>4</sub> .....	1.71973	0.23546	0.58148	I.76454
<b>Ammonium,</b> NH <sub>4</sub> =18.072						
Ag.....	NH <sub>4</sub> Br.....	NH <sub>4</sub> Br.....	0.90830	I.95823	1.10095	0.04177
	NH <sub>4</sub> Cl.....	NH <sub>4</sub> Cl.....	0.49591	I.69540	2.01650	0.30460
	NH <sub>4</sub> I.....	NH <sub>4</sub> I.....	1.34383	0.12835	0.74413	I.87165
AgBr.....	NH <sub>4</sub> Br.....	NH <sub>4</sub> Br.....	0.52175	I.71746	1.91664	0.28254
AgCl.....	NH <sub>4</sub> Cl.....	NH <sub>4</sub> Cl.....	0.37329	I.57205	2.67887	0.42795
AgI.....	NH <sub>4</sub> I.....	NH <sub>4</sub> I.....	0.61777	I.79083	1.61870	0.20917
BaSO <sub>4</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	0.56627	I.75303	1.76592	0.24697
Br.....	NH <sub>4</sub> Br.....	NH <sub>4</sub> Br.....	1.22600	0.08850	0.81563	I.91150
Cl.....	NH <sub>4</sub> .....	NH <sub>4</sub> .....	0.50979	I.70739	1.96159	0.29261
	NH <sub>4</sub> Cl.....	NH <sub>4</sub> Cl.....	1.50979	0.17892	0.66234	I.82108
HCl.....	NH <sub>4</sub> Cl.....	NH <sub>4</sub> Cl.....	1.46803	0.16674	0.68118	I.83326
I.....	NH <sub>4</sub> I.....	NH <sub>4</sub> I.....	1.1423	0.05779	0.87540	I.94221
MgNH <sub>4</sub> PO <sub>4</sub> .6H <sub>2</sub> O	NH <sub>3</sub> .....	NH <sub>3</sub> .....	0.06950	2.84198	1.43913	0.15802
	NH <sub>4</sub> .....	NH <sub>4</sub> .....	0.07360	2.86691	1.35859	0.13309
	(NH <sub>4</sub> ) <sub>2</sub> O.....	(NH <sub>4</sub> ) <sub>2</sub> O.....	0.01062	2.02607	9.41740	0.97393
N.....	NH <sub>3</sub> .....	NH <sub>3</sub> .....	1.21537	0.08471	0.82280	I.91529
	NH <sub>4</sub> .....	NH <sub>4</sub> .....	1.28718	0.10964	0.77688	I.89036
	NH <sub>4</sub> Cl.....	NH <sub>4</sub> Cl.....	3.81217	0.58117	0.26232	I.41883
	(NH <sub>4</sub> ) <sub>2</sub> O.....	(NH <sub>4</sub> ) <sub>2</sub> O.....	1.88974	0.27640	0.52917	I.72360
	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	4.79111	0.68044	0.20872	I.31956

\* See end of this Table for notes on A and B.

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
Ammonium						
NH <sub>3</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .....	2.8172	0.44982	0.35495	I.55018
		NH <sub>4</sub> HCO <sub>3</sub> .....	4.6343	0.66599	0.21578	I.33401
		NH <sub>4</sub> NO <sub>3</sub> .....	4.6948	0.67162	0.21300	I.32838
		(NH <sub>4</sub> ) <sub>2</sub> O.....	1.5279	0.18409	0.65450	I.81591
		NH <sub>4</sub> OH.....	2.0558	0.31298	0.48643	I.68702
NH <sub>4</sub> Cl.....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	3.8737	0.58813	0.25815	I.41187
		NH <sub>3</sub> .....	0.31882	I.50354	3.13661	0.49646
		NH <sub>4</sub> .....	0.33765	I.52847	2.96160	0.47153
		(NH <sub>4</sub> ) <sub>2</sub> O.....	0.48711	I.68763	2.05290	0.31237
		NH <sub>4</sub> OH.....	0.65541	I.81652	1.52575	0.18348
(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> .....	NH <sub>3</sub> .....	NH <sub>3</sub> .....	0.07692	2.88604	13.0006	1.11396
		NH <sub>4</sub> .....	0.08147	2.91101	12.2742	1.08899
		NH <sub>4</sub> Cl.....	0.24129	I.38254	4.14440	0.61746
		NH <sub>4</sub> NO <sub>3</sub> .....	0.36116	I.55770	2.76887	0.44230
		(NH <sub>4</sub> ) <sub>2</sub> O.....	0.11753	I.07017	8.50800	0.92983
		NH <sub>4</sub> OH.....	0.15815	I.19906	6.32329	0.80094
		(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	0.29799	I.47421	3.35577	0.52579
		NH <sub>3</sub> .....	0.46803	I.67028	2.13660	0.32972
		NH <sub>4</sub> NO <sub>3</sub> .....	1.48243	0.17097	0.67457	I.82903
		(NH <sub>4</sub> ) <sub>2</sub> O.....	0.48244	I.68345	2.07276	0.31655
Pt.....	NH <sub>3</sub> .....	NH <sub>3</sub> .....	0.17520	I.24352	5.70800	0.75648
		NH <sub>4</sub> .....	0.18558	I.26854	5.38838	0.73146
		NH <sub>4</sub> Cl.....	0.54951	I.73998	1.81979	0.26002
		NH <sub>4</sub> NO <sub>3</sub> .....	0.82250	I.91514	1.21580	0.08486
		(NH <sub>4</sub> ) <sub>2</sub> O.....	0.26767	I.42761	3.73583	0.57239
		NH <sub>4</sub> OH.....	0.36017	I.55650	2.77650	0.44350
		(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	0.67865	I.83165	1.47350	0.16835
SO <sub>3</sub> .....	NH <sub>3</sub> .....	NH <sub>3</sub> .....	0.42627	I.62969	2.34589	0.37031
		(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	1.65127	0.21782	0.60559	I.78218
		Antimony, Sb= 120.2				
Sb.....	Sb <sub>2</sub> O <sub>3</sub> .....	Sb <sub>2</sub> O <sub>3</sub> .....	1.19969	0.07907	0.83354	I.92093
		Sb <sub>2</sub> O <sub>5</sub> .....	1.33279	0.12476	0.75031	I.87524
		KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	2.68219	0.42849	0.37283	I.57151
Sb <sub>2</sub> O <sub>3</sub> .....	Sb <sub>2</sub> O <sub>5</sub> .....	Sb <sub>2</sub> O <sub>5</sub> .....	1.11095	0.04569	0.90013	I.95431
		Sb <sub>2</sub> S <sub>5</sub> .....	1.38939	0.14282	0.71975	I.85718
		KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	2.23574	0.34942	0.44728	I.65058
Sb <sub>2</sub> O <sub>4</sub> .....	Sb.....	Sb.....	0.78975	I.89749	1.26623	0.10251
		Sb <sub>2</sub> O <sub>3</sub> .....	0.94745	I.97656	1.05546	0.02344
		Sb <sub>2</sub> O <sub>5</sub> .....	1.05256	0.02225	0.95006	I.97775
		Sb <sub>2</sub> S <sub>3</sub> .....	1.10573	0.04365	0.90438	I.95635

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
Antimony						
Sb <sub>2</sub> O <sub>4</sub> .....	Sb <sub>2</sub> S <sub>5</sub> .....	Sb <sub>2</sub> S <sub>5</sub> .....	1.31636	0.11938	0.75966	I.88062
	KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	2.11825	0.32598	0.47209	I.67402
Sb <sub>2</sub> O <sub>5</sub> .....	Sb <sub>2</sub> S <sub>5</sub> .....	Sb <sub>2</sub> S <sub>5</sub> .....	1.25063	0.09713	0.79960	I.90287
Sb <sub>2</sub> S <sub>3</sub> .....	Sb.....	Sb.....	0.71423	I.85384	1.40097	0.14616
	Sb <sub>2</sub> O <sub>3</sub> .....	Sb <sub>2</sub> O <sub>3</sub> .....	0.85685	I.93291	1.16705	0.06709
	Sb <sub>2</sub> O <sub>5</sub> .....	Sb <sub>2</sub> O <sub>5</sub> .....	0.95192	I.97860	1.05051	0.02140
	KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	1.91570	0.28233	0.52200	I.71767
Sb <sub>2</sub> S <sub>5</sub> .....	Sb.....	Sb.....	0.59994	I.77811	1.66681	0.22189
Arsenic, As=75						
As <sub>2</sub> O <sub>3</sub> .....	As.....	As.....	0.75758	I.87943	1.3201	0.12057
	As <sub>2</sub> O <sub>5</sub> .....	As <sub>2</sub> O <sub>5</sub> .....	1.16162	0.06506	0.86088	I.93494
As <sub>2</sub> O <sub>5</sub> .....	As.....	As.....	0.65217	I.81436	1.53384	0.18564
As <sub>2</sub> S <sub>3</sub> .....	As.....	As.....	0.60931	I.78484	1.64119	0.21516
	As <sub>2</sub> O <sub>3</sub> .....	As <sub>2</sub> O <sub>3</sub> .....	0.80429	I.90541	1.24334	0.09459
	As <sub>2</sub> O <sub>5</sub> .....	As <sub>2</sub> O <sub>5</sub> .....	0.93428	I.97048	1.07034	0.02952
	As <sub>2</sub> S <sub>5</sub> .....	As <sub>2</sub> S <sub>5</sub> .....	1.26046	0.10053	0.79336	I.89947
As <sub>2</sub> S <sub>5</sub> .....	As.....	As.....	0.48340	I.68431	2.06867	0.31569
	As <sub>2</sub> O <sub>3</sub> .....	As <sub>2</sub> O <sub>3</sub> .....	0.63809	I.80438	1.56718	0.19512
	As <sub>2</sub> O <sub>5</sub> .....	As <sub>2</sub> O <sub>5</sub> .....	0.74122	I.86995	1.34912	0.13005
BaSO <sub>4</sub> .....	As.....	As.....	0.21416	I.33075	4.66933	0.66925
	As <sub>2</sub> O <sub>3</sub> .....	As <sub>2</sub> O <sub>3</sub> .....	0.28270	I.45133	3.53725	0.54867
	As <sub>2</sub> O <sub>5</sub> .....	As <sub>2</sub> O <sub>5</sub> .....	0.32839	I.51639	3.04514	0.48361
	AsO <sub>3</sub> .....	AsO <sub>3</sub> .....	0.35124	I.54560	2.84707	0.45440
	AsO <sub>4</sub> .....	AsO <sub>4</sub> .....	0.39692	I.59870	2.51941	0.40130
MgNH <sub>4</sub> AsO <sub>4</sub> . ½H <sub>2</sub> O.....	As.....	As.....	0.39382	I.59530	2.53923	0.40470
	As <sub>2</sub> O <sub>3</sub> .....	As <sub>2</sub> O <sub>3</sub> .....	0.51985	I.71588	1.92361	0.28412
	AsO <sub>3</sub> .....	AsO <sub>3</sub> .....	0.64587	I.81015	1.54829	0.18985
	As <sub>2</sub> O <sub>5</sub> .....	As <sub>2</sub> O <sub>5</sub> .....	0.60386	I.78094	1.65600	0.21906
	AsO <sub>4</sub> .....	AsO <sub>4</sub> .....	0.72988	I.86325	1.37009	0.13675
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....	As.....	As.....	0.48275	I.68372	2.07148	0.31628
	As <sub>2</sub> O <sub>3</sub> .....	As <sub>2</sub> O <sub>3</sub> .....	0.63723	I.80430	1.56929	0.19570
	AsO <sub>3</sub> .....	AsO <sub>3</sub> .....	0.79171	I.89857	1.26309	0.10143
	As <sub>2</sub> O <sub>5</sub> .....	As <sub>2</sub> O <sub>5</sub> .....	0.74021	I.86936	1.35094	0.13064
	AsO <sub>4</sub> .....	AsO <sub>4</sub> .....	0.89468	I.95167	1.11769	0.04833
	As <sub>2</sub> S <sub>3</sub> .....	As <sub>2</sub> S <sub>3</sub> .....	0.79228	I.89888	1.26218	0.10112
Barium, Ba=137.4						
BaCO <sub>3</sub> .....	Ba.....	Ba.....	0.69605	I.84264	1.43668	0.15736
	Ba(HCO <sub>3</sub> ) <sub>2</sub> .....	Ba(HCO <sub>3</sub> ) <sub>2</sub> .....	1.31415	0.11865	0.76093	I.88135



A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
Barium						
BaCO <sub>3</sub> .....		BaCl <sub>2</sub> .....	1.05522	0.02334	0.94767	1.97666
		BaO.....	0.77710	1.89048	1.28682	0.10952
BaCrO <sub>4</sub> .....		Ba.....	0.54201	1.73401	1.84496	0.26599
		BaCl <sub>2</sub> .....	0.82170	1.91471	1.21700	0.08529
		BaCO <sub>3</sub> .....	0.77870	1.89137	1.28418	0.10863
		BaO.....	0.60513	1.78185	1.69104	0.21815
BaSiF <sub>6</sub> .....		Ba.....	0.49107	1.69114	2.03638	0.30886
		BaF <sub>2</sub> .....	0.62687	1.79718	1.59522	0.20282
		BaO.....	0.54825	1.73898	1.82400	0.26102
BaSO <sub>4</sub> .....		Ba.....	0.58854	1.76977	1.69916	0.23023
		BaCl <sub>2</sub> .....	0.89223	1.95048	1.12077	0.04952
		BaCl <sub>2</sub> .2H <sub>2</sub> O.....	1.04657	0.01977	0.95550	1.98023
		BaCO <sub>3</sub> .....	0.84554	1.92713	1.18269	0.07237
		Ba(NO <sub>3</sub> ) <sub>2</sub> .....	1.12002	0.04923	0.89284	1.95077
		BaO.....	0.65707	1.81761	1.52186	0.18239
		BaO <sub>2</sub> .....	0.72561	1.86070	1.37816	0.13930
		BaS.....	0.72586	1.86085	1.37769	0.13915
		BaO.....	3.48642	0.54238	0.28682	1.45762
		BaCO <sub>3</sub> .....	4.48640	0.65190	0.22290	1.34810
		Beryllium, Be= 9.1 See Glucinum				
Bismuth, Bi= 208.5						
Bi.....		Bi <sub>2</sub> O <sub>3</sub> .....	1.11510	0.04731	0.89678	1.95269
BiAsO <sub>4</sub> .....		Bi.....	0.60001	1.77816	1.66663	0.22184
		Bi <sub>2</sub> O <sub>3</sub> .....	0.66906	1.82547	1.49463	0.17453
Bi <sub>2</sub> O <sub>3</sub> .....		Bi.....	0.89677	1.95268	1.11513	0.04732
		BiONO <sub>3</sub> .....	1.23243	0.09076	0.81140	1.90924
		Bi(NO <sub>3</sub> ) <sub>3</sub> .5H <sub>2</sub> O.....	2.08482	0.31907	0.47965	1.68093
		Bi.....	0.80208	1.90422	1.24674	0.09578
BiOCl.....		BiONO <sub>3</sub> .....	1.10227	0.04229	0.90722	1.95771
		Bi(NO <sub>3</sub> ) <sub>3</sub> .5H <sub>2</sub> O.....	1.86457	0.27058	0.53631	1.72942
		Bi <sub>2</sub> O <sub>3</sub> .....	0.89440	1.95153	1.11808	0.04847
		Bi.....	0.81258	1.90987	1.23040	0.09013
Bi <sub>2</sub> S <sub>3</sub> .....		Bi <sub>2</sub> O <sub>3</sub> .....	0.90612	1.95718	1.10362	0.04282
Boron, B= 11						
B <sub>2</sub> O <sub>3</sub> .....		B.....	0.31429	1.49732	3.18186	0.50268
		H <sub>3</sub> BO <sub>3</sub> .....	1.77212	0.24849	0.56430	1.75151
		Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O.....	5.46113	0.73728	0.18311	1.26272
KBF <sub>4</sub> .....		B.....	0.08720	2.94051	11.4682	2.05949
		B <sub>2</sub> O <sub>3</sub> .....	0.27745	1.44318	3.60431	0.55682

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
<b>Boron</b>						
KBF <sub>4</sub> .....	H <sub>3</sub> BO <sub>3</sub> .....	0.49167	I.69167	2.03390	0.30833	
	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O....	0.75758	I.87943	1.32000	0.12057	
<b>Bromine, Br=79.96</b>						
Ag.....	Br.....	0.74085	I.86973	1.34981	0.13027	
	BrO <sub>3</sub> .....	1.18564	0.07395	0.84343	I.92605	
	HBr.....	0.75018	I.87517	1.33300	0.12483	
AgBr.....	Br.....	0.42557	I.62897	2.34983	0.37103	
	BrO <sub>3</sub> .....	0.68105	I.83318	1.46831	0.16682	
	HBr.....	0.43092	I.63440	2.32058	0.36560	
Br.....	O.....	0.10005	I.00022	9.99500	0.99978	
<b>Cadmium, Cd=112.4</b>						
Cd.....	CdCl <sub>2</sub> .....	1.63077	0.21239	0.61321	I.78761	
	Cd(NO <sub>3</sub> ) <sub>2</sub> .....	2.10386	0.32302	0.47531	I.67698	
CdO.....	Cd.....	0.87542	I.94220	1.14234	0.05780	
	CdCl <sub>2</sub> .....	1.42781	0.15459	0.70050	I.84541	
	Cd(NO <sub>3</sub> ) <sub>2</sub> .....	1.84171	0.26522	0.54298	I.73478	
CdS.....	Cd.....	0.77806	I.89102	1.28524	0.10898	
	CdCl <sub>2</sub> .....	1.26885	0.10341	0.78811	I.89659	
	Cd(NO <sub>3</sub> ) <sub>2</sub> .....	1.63712	0.21402	0.61091	I.78598	
	CdO.....	0.88884	I.94882	1.12508	0.05118	
CdSO <sub>4</sub> .....	Cd.....	0.53919	I.73174	1.85465	0.26826	
	CdCl <sub>2</sub> .....	0.87928	I.94413	1.13729	0.05587	
	Cd(NO <sub>3</sub> ) <sub>2</sub> .....	1.13438	0.05476	0.88153	I.94524	
	CdO.....	0.61594	I.78954	1.62352	0.21046	
<b>Caesium, Cs=132.9</b>						
AgCl.....	CsCl.....	1.17414	0.06972	0.85168	I.93028	
Cl.....	Cs.....	3.74883	0.57390	0.26674	I.42610	
	CsCl.....	4.74911	0.67659	0.21057	I.32341	
Cs.....	CsCl.....	1.26674	0.10269	0.78942	I.89731	
	Cs <sub>2</sub> CO <sub>3</sub> .....	1.54311	0.18840	0.64803	I.81160	
	Cs <sub>2</sub> O.....	1.06020	0.02539	0.94322	I.97461	
Cs <sub>2</sub> O.....	CsCl.....	1.19481	0.07730	0.83695	I.92270	
	Cs <sub>2</sub> SO <sub>4</sub> .....	1.28409	0.10860	0.77858	I.89130	
Cs <sub>2</sub> PtCl <sub>6</sub> .....	Cs.....	0.39476	I.59634	2.53312	0.40366	
	CsCl.....	0.50007	I.69903	1.99995	0.30097	
	Cs <sub>2</sub> CO <sub>3</sub> .....	0.48388	I.68474	2.06662	0.31526	
	Cs <sub>2</sub> O.....	0.41853	I.62173	2.38928	0.37827	
Cs <sub>2</sub> SO <sub>4</sub> .....	Cs.....	0.73453	I.86601	1.36141	0.13399	

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
Caesium						
Cs <sub>2</sub> SO <sub>4</sub> .....		CsCl.....	0.93046	$\bar{1}.96870$	1.07423	0.03130
		Cs <sub>2</sub> CO <sub>3</sub> .....	0.90034	$\bar{1}.95441$	1.11069	0.04559
		Cs <sub>2</sub> O.....	0.77875	$\bar{1}.89140$	1.28409	0.10860
		Cs <sub>2</sub> O.....	3.51983	0.54652	0.28411	$\bar{1}.45348$
SO <sub>3</sub> .....						
Calcium, Ca = 40.1						
BaSO <sub>4</sub> .....		CaS.....	0.30909	$\bar{1}.49009$	3.23529	0.50991
		CaSO <sub>4</sub> .....	0.58323	$\bar{1}.76584$	1.71460	0.23416
		CaSO <sub>4</sub> ·2H <sub>2</sub> O.....	0.73756	$\bar{1}.86780$	1.35581	0.13220
Ca.....		CaCl <sub>2</sub> .....	2.76807	0.44218	0.36126	$\bar{1}.55782$
		CaO.....	1.39900	0.14582	0.71480	$\bar{1}.85418$
CaCO <sub>3</sub> .....		Ca.....	0.40060	$\bar{1}.60271$	2.49628	0.39729
		CaCl <sub>2</sub> .....	1.10890	0.04489	0.90180	$\bar{1}.95511$
		Ca(HCO <sub>3</sub> ) <sub>2</sub> .....	1.61950	0.20938	0.61747	$\bar{1}.79062$
		CaO.....	0.56044	$\bar{1}.74853$	1.78432	0.25147
		CaSO <sub>4</sub> .....	1.36024	0.13362	0.73515	$\bar{1}.86638$
		CaSO <sub>4</sub> ·2H <sub>2</sub> O.....	1.72020	0.23558	0.58132	$\bar{1}.76442$
		HCl.....	0.72845	$\bar{1}.86240$	1.37278	0.13760
		Ca.....	0.71480	$\bar{1}.85418$	1.39900	0.14582
		CaCl <sub>2</sub> .....	1.97859	0.29636	0.50540	$\bar{1}.70364$
		CaCO <sub>3</sub> .....	1.78432	0.25147	0.56044	$\bar{1}.74853$
		Ca(HCO <sub>3</sub> ) <sub>2</sub> .....	2.88967	0.46085	0.34604	$\bar{1}.53915$
		CaSO <sub>4</sub> .....	2.42711	0.38509	0.41201	$\bar{1}.61495$
Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....		CaSO <sub>4</sub> ·2H <sub>2</sub> O.....	3.06936	0.48705	0.32580	$\bar{1}.51291$
		CaO.....	0.54237	$\bar{1}.73430$	1.84370	0.26570
		CaSO <sub>4</sub> .....	1.31639	0.11939	0.75965	$\bar{1}.88061$
CaSO <sub>4</sub> .....		Ca.....	0.29450	$\bar{1}.46909$	3.39554	0.53091
		CaCl <sub>2</sub> .....	0.81521	$\bar{1}.91127$	1.22669	0.08873
		CaCO.....	0.73515	$\bar{1}.86638$	1.36025	0.13362
		CaF <sub>2</sub> .....	0.57359	$\bar{1}.75860$	1.74367	0.24140
		CaO.....	0.41201	$\bar{1}.61491$	2.42711	0.38509
		Ca.....	0.56557	$\bar{1}.75249$	1.76812	0.24751
		CaCl <sub>2</sub> .....	1.56557	0.19467	0.63875	$\bar{1}.80533$
CO <sub>2</sub> .....		CaO.....	0.79123	$\bar{1}.89831$	1.26383	0.10169
		CaO.....	1.27500	0.10551	0.78431	$\bar{1}.89449$
		CaCO <sub>3</sub> .....	2.27500	0.35698	0.43956	$\bar{1}.64302$
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....		Ca <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> .....	1.28188	0.10784	0.78011	$\bar{1}.89216$
MgO.....		CaO.....	1.39000	0.14301	0.71943	$\bar{1}.85699$
Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....		Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	1.39323	0.14402	0.71776	$\bar{1}.85598$
(NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub> .....						
12MoO <sub>3</sub> .....		Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	0.08265	$\bar{2}.91724$	0.12099	$\bar{2}.08276$
N <sub>2</sub> O <sub>5</sub> .....		Ca(NO <sub>3</sub> ) <sub>2</sub> .....	1.51904	0.18157	0.65831	$\bar{1}.81843$

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga-rithm.	Factor.	Loga-rithm.
Calcium						
P <sub>2</sub> O <sub>5</sub> .....	Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	2.18520	0.33949	0.45762	I.66051	
SO <sub>3</sub> .....	CaO.....	0.70071	I.84554	1.42713	0.15446	
	CaSO <sub>4</sub> .....	1.70072	0.23063	0.58799	I.76937	
	CaSO <sub>4</sub> .2H <sub>2</sub> O.....	2.15075	0.33259	0.46495	I.66741	
WO <sub>3</sub> .....	CaWO <sub>4</sub> .....	1.24180	0.09405	0.80528	I.90595	
Carbon, C=12.00						
Ag.....	HCN.....	0.25061	I.39900	3.99027	0.60100	
	KCN.....	0.60400	I.78104	1.65562	0.21896	
AgCN.....	HCN.....	0.20190	I.30514	4.95289	0.69486	
	KCN.....	0.48661	I.68718	2.05505	0.31282	
BaCO <sub>3</sub> .....	C.....	0.06079	2.78383	16.4500	1.21617	
	CO <sub>2</sub> .....	0.22290	I.34811	4.48623	0.65189	
	CO <sub>3</sub> .....	0.30395	I.48280	3.29000	0.51720	
BaO.....	CO <sub>2</sub> .....	0.28683	I.45763	3.48633	0.54237	
	CO <sub>2</sub> .....					
	(bicarbonate)	0.57366	I.75866	1.74316	0.24134	
CaO.....	CO <sub>2</sub> .....	0.78431	I.89449	1.27500	0.10551	
	CO <sub>2</sub> .....					
	(bicarbonate)	1.56863	0.19552	0.63165	I.80448	
CO <sub>2</sub> .....	BaCO <sub>3</sub> .....	4.48870	0.65212	0.22278	I.34788	
	Ba(HCO <sub>3</sub> ) <sub>2</sub> .....	2.94793	0.46952	0.33922	I.53048	
	C.....	0.27273	I.43573	3.66676	0.56427	
	CaCO <sub>3</sub> .....	2.27500	0.35698	0.43956	I.64302	
	Ca(HCO <sub>3</sub> ) <sub>2</sub> .....	1.97859	0.29636	0.50540	I.70364	
	CO.....	1.36365	0.13470	0.73333	I.86530	
	Cs <sub>2</sub> CO <sub>3</sub> .....	7.40450	0.86950	0.13536	I.13050	
	CsHCO <sub>3</sub> .....	4.40730	0.64417	0.22690	I.35583	
	FeCO <sub>3</sub> .....	2.63406	0.42063	0.37964	I.57937	
	Fe(HCO <sub>3</sub> ) <sub>2</sub> .....	2.02181	0.30574	0.49461	I.69426	
	K <sub>2</sub> CO <sub>3</sub> .....	3.14321	0.49737	0.31815	I.50263	
	KHCO <sub>3</sub> .....	2.27626	0.35722	0.43932	I.64278	
	K <sub>2</sub> O.....	2.14305	0.33106	0.46660	I.66894	
	Li <sub>2</sub> CO <sub>3</sub> .....	1.68319	0.22613	0.59411	I.77387	
	LiHCO <sub>3</sub> .....	1.54625	0.18930	0.64670	I.81070	
	Li <sub>2</sub> O.....	0.68318	I.83454	1.46373	0.16546	
	MgCO <sub>3</sub> .....	1.91730	0.28269	0.52157	I.71731	
	Mg(HCO <sub>3</sub> ) <sub>2</sub> .....	1.66339	0.22099	0.60118	I.77901	
	MgO.....	0.91728	I.96250	1.09018	0.03750	
	MnCO <sub>3</sub> .....	2.61353	0.41725	0.38261	I.58275	
	Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	4.02309	0.60456	0.24856	I.39544	
	MnO.....	1.61367	0.20781	0.61971	I.79219	

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
Carbon						
CO <sub>2</sub> .....		Na <sub>2</sub> CO <sub>3</sub> .....	2.41138	0.38227	0.41470	I.61773
		NaHCO <sub>3</sub> .....	1.91043	0.28113	0.52344	I.71887
		Na <sub>2</sub> O.....	1.41137	0.14964	0.70853	I.85036
		(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .....	2.18510	0.33947	0.45764	I.66053
		NH <sub>4</sub> HCO.....	1.79732	0.25462	0.55639	I.74538
		Rb <sub>2</sub> CO <sub>3</sub> .....	5.25000	0.72016	0.19048	I.27984
		RbHCO <sub>3</sub> .....	3.32977	0.52241	0.30032	I.47759
		Rb <sub>2</sub> O.....	4.24550	0.62793	0.23554	I.37207
		SrCO <sub>3</sub> .....	3.35462	0.52564	0.29810	I.47436
		Sr(HCO <sub>3</sub> ) <sub>2</sub> .....	2.38200	0.37694	0.41982	I.62306
		SrO.....	2.35455	0.37191	0.42471	I.62809
Cerium, Ce=140.25						
Ce.....		Ce(NO <sub>3</sub> ) <sub>4</sub> .....	2.76944	0.44239	0.36108	I.55761
		Ce(NO <sub>3</sub> ) <sub>4</sub> (NH <sub>4</sub> NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O	4.04145	0.60654	0.24743	I.39346
Ce <sub>2</sub> O <sub>3</sub> .....		Ce <sub>2</sub> O <sub>3</sub> .....	1.17114	0.06861	0.85385	I.93139
		CeO <sub>2</sub> .....	1.22817	0.08926	0.81421	I.91074
		Ce(SO <sub>4</sub> ) <sub>3</sub> .....	2.02741	0.30694	0.49324	I.69306
		Ce(NO <sub>3</sub> ) <sub>4</sub> .....	2.36472	0.37378	0.42356	I.62692
		Ce(NO <sub>3</sub> ) <sub>4</sub> (NH <sub>4</sub> NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O	3.45092	0.53793	0.28978	I.46207
		CeO <sub>2</sub> .....	1.04869	0.02065	0.95356	I.97935
CeO <sub>2</sub> .....		Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	1.73112	0.23833	0.57766	I.76167
		Ce(NO <sub>3</sub> ) <sub>4</sub> .....	2.25490	0.35313	0.44348	I.64687
		Ce(NO <sub>3</sub> ) <sub>4</sub> (NH <sub>4</sub> NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O	3.29062	0.51728	0.30389	I.48272
		Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	1.65074	0.21768	0.60578	I.78232
Chlorine, Cl=35.45						
Ag.....		Cl.....	0.32846	I.51648	3.04467	0.48352
		HCl.....	0.33780	I.52866	2.96033	0.47134
AgCl.....		Cl.....	0.24725	I.39313	4.04455	0.60687
		HCl.....	0.25427	I.40531	3.93273	0.59469
BaCrO <sub>4</sub> .....		Cl.....	0.27968	I.44667	3.57542	0.55333
Ca.....		Cl.....	1.76812	0.24751	0.56557	I.75249
K.....		Cl.....	0.90550	I.95689	1.10410	0.04311
KCl.....		Cl.....	0.47520	I.67688	2.10435	0.32312
Li.....		Cl.....	5.04267	0.70266	0.19831	I.29734
Mg.....		Cl.....	2.91053	0.46397	0.34358	I.53603
MgCl <sub>2</sub> .....		Cl.....	0.74428	I.87174	1.34356	0.12826
MnO <sub>2</sub> .....		Cl.....	0.81495	I.91113	1.22708	0.08887

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
Chlorine						
Na . . . . .	Cl . . . . .	Cl . . . . .	1.53797	0.18695	0.65020	I.81305
NaCl . . . . .	Cl . . . . .	Cl . . . . .	0.60599	I.78246	1.65022	0.21754
NH <sub>4</sub> . . . . .	Cl . . . . .	Cl . . . . .	1.96159	0.29261	0.50979	I.70739
NH <sub>4</sub> Cl . . . . .	HCl . . . . .	HCl . . . . .	0.68118	I.83326	1.46803	0.16674
(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . . . . .	HCl . . . . .	HCl . . . . .	0.55155	I.74159	1.81304	0.25841
PbCrO <sub>4</sub> . . . . .	Cl . . . . .	Cl . . . . .	0.21952	I.34145	4.55574	0.65855
Chromium, Cr= 52.1						
BaCrO <sub>4</sub> . . . . .	Cr . . . . .	Cr . . . . .	0.20552	I.31286	4.86567	0.68714
	Cr <sub>2</sub> O <sub>3</sub> . . . . .	Cr <sub>2</sub> O <sub>3</sub> . . . . .	0.30019	I.47740	3.33123	0.52260
	CrO <sub>3</sub> . . . . .	CrO <sub>3</sub> . . . . .	0.39486	I.59645	2.53250	0.40355
	CrO <sub>4</sub> . . . . .	CrO <sub>4</sub> . . . . .	0.45798	I.66085	2.18350	0.33915
	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O . . . . .	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O . . . . .	1.41355	0.15031	0.70743	I.84969
Cr <sub>2</sub> O <sub>3</sub> . . . . .	Cr . . . . .	Cr . . . . .	0.68463	I.83546	1.46063	0.16454
	CrO <sub>3</sub> . . . . .	CrO <sub>3</sub> . . . . .	1.31536	0.11905	0.76023	I.88095
K <sub>2</sub> CrO <sub>4</sub> . . . . .	CrO <sub>3</sub> . . . . .	CrO <sub>3</sub> . . . . .	0.51491	I.71173	1.94209	0.28827
K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> . . . . .	CrO <sub>3</sub> . . . . .	CrO <sub>3</sub> . . . . .	0.67978	I.83237	1.47107	0.16763
PbCrO <sub>4</sub> . . . . .	Cr . . . . .	Cr . . . . .	0.16130	I.20764	6.19957	0.79236
	Cr <sub>2</sub> O <sub>3</sub> . . . . .	Cr <sub>2</sub> O <sub>3</sub> . . . . .	0.23560	I.37218	4.24440	0.62782
	CrO <sub>3</sub> . . . . .	CrO <sub>3</sub> . . . . .	0.30991	I.49123	3.22671	0.50877
	CrO <sub>4</sub> . . . . .	CrO <sub>4</sub> . . . . .	0.35944	I.55563	2.78207	0.44437
	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O . . . . .	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O . . . . .	1.10941	0.04509	0.90138	I.95491
	K <sub>2</sub> CrO <sub>4</sub> . . . . .	K <sub>2</sub> CrO <sub>4</sub> . . . . .	0.60187	I.77950	1.66150	0.22050
	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> . . . . .	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> . . . . .	0.45589	I.65886	2.19350	0.34114
Cobalt, Co= 59						
Co . . . . .	CoO . . . . .	CoO . . . . .	1.27119	0.10421	0.78666	I.89579
	Co(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O . . . . .	Co(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O . . . . .	4.93511	0.69330	0.20263	I.30670
	CoSO <sub>4</sub> .7H <sub>2</sub> O . . . . .	CoSO <sub>4</sub> .7H <sub>2</sub> O . . . . .	4.76567	0.67812	0.20983	I.32188
Co(NO <sub>2</sub> ) <sub>3</sub> (KNO <sub>2</sub> ) <sub>3</sub> . . . . .	Co . . . . .	Co . . . . .	0.13033	I.11505	7.67267	0.88495
	CoO . . . . .	CoO . . . . .	0.16568	I.21926	6.03586	0.78074
Co <sub>3</sub> O <sub>4</sub> . . . . .	Co . . . . .	Co . . . . .	0.73443	I.86595	1.36166	0.13405
	CoO . . . . .	CoO . . . . .	0.93360	I.97016	1.07113	0.02984
CoSO <sub>4</sub> . . . . .	Co . . . . .	Co . . . . .	0.38050	I.58035	2.62812	0.41965
	CoO . . . . .	CoO . . . . .	0.48368	I.68456	2.06748	0.31544
(CoSO <sub>4</sub> ) <sub>2</sub> (K <sub>2</sub> SO <sub>4</sub> ) <sub>3</sub> . . . . .	Co . . . . .	Co . . . . .	0.14162	I.15113	7.06100	0.84887
	CoO . . . . .	CoO . . . . .	0.18003	I.25534	5.55471	0.74466
Columbium, Cb= 94						
Cb <sub>2</sub> O <sub>5</sub> . . . . .	Cb . . . . .	Cb . . . . .	0.70150	I.84603	1.42552	0.15397
Copper, Cu= 63.6						
Cu . . . . .	CuO . . . . .	CuO . . . . .	1.25157	0.09746	0.79898	I.90254

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Copper</b>						
Cu .....		CuSO <sub>4</sub> .5H <sub>2</sub> O .....	3.92673	0.59403	0.25467	I.40597
		Cu <sub>2</sub> { C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> } (AsO <sub>2</sub> ) <sub>3</sub> } .....	3.98755	0.60071	0.25078	I.39929
CuCNS.....		Cu.....	0.52260	I.71817	1.91352	0.28183
		CuO .....	0.65406	I.81562	1.52890	0.18438
CuO.....		Cu.....	0.79900	I.90255	1.25156	0.09745
		CuSO <sub>4</sub> .5H <sub>2</sub> O .....	3.13750	0.49658	0.31873	I.50342
Cu <sub>2</sub> S.....		Cu.....	0.79869	I.90238	1.25206	0.09762
		CuO .....	0.99962	I.99984	1.00037	0.00016
		Cu <sub>2</sub> O.....	0.89916	I.95384	1.11215	0.04616
		CuSO <sub>4</sub> .5H <sub>2</sub> O .....	1.56811	0.19538	0.63770	I.80462
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....		Cu { C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> } (AsO <sub>2</sub> ) <sub>3</sub> } .....	1.08825	0.03673	0.91890	I.96327
<b>Erbium, Er=166</b>						
Er <sub>2</sub> O <sub>3</sub> .....		Er.....	0.87370	I.94136	1.11455	0.05864
<b>Fluorine, F=19</b>						
<b>BaSiF<sub>6</sub></b>						
		BaF <sub>2</sub> .....	0.62665	I.79703	1.59578	0.20297
		F.....	0.40743	I.61006	2.45439	0.38994
		HF.....	0.42904	I.63250	2.33078	0.36750
		H <sub>2</sub> SiF <sub>6</sub> .....	0.51614	I.71277	1.93745	0.28723
		SiF <sub>4</sub> .....	0.37312	I.57185	2.68012	0.42815
		SiF <sub>6</sub> .....	0.50893	I.70666	1.96491	0.29334
<b>CaF<sub>2</sub></b>						
		F.....	0.48655	I.68713	2.05529	0.31287
		HF.....	0.51238	I.70959	1.95168	0.29041
		H <sub>2</sub> SiF <sub>6</sub> .....	1.84913	0.26697	0.54079	I.73303
<b>CaSO<sub>4</sub></b>						
		F.....	0.27908	I.44573	3.58317	0.55427
		HF.....	0.29389	I.46819	3.40262	0.53181
<b>K<sub>2</sub>SiF<sub>6</sub></b>						
		F.....	0.51654	I.71310	1.93596	0.28690
		HF.....	0.54394	I.73555	1.83843	0.26445
		H <sub>2</sub> SiF <sub>6</sub> .....	0.65436	I.81582	1.52821	0.18418
		KF.....	0.52696	I.72178	1.89765	0.27822
		SiF <sub>6</sub> .....	0.64523	I.80971	1.54989	0.19029
<b>H<sub>2</sub>SiF<sub>6</sub></b>						
		F.....	0.78936	I.89728	1.26683	0.10272
		2HF.....	0.27709	I.44262	3.60892	0.55738
		6HF.....	0.83123	I.91973	1.20300	0.08027
		SiF <sub>4</sub> .....	0.72290	I.85908	1.38331	0.14092
		SiF <sub>6</sub> .....	0.98602	I.99389	1.01416	0.00611
<b>Gallium, Ga=70</b>						
Ga <sub>2</sub> O <sub>3</sub> .....		Ga.....	0.74468	I.87197	1.34285	0.12803
Ga <sub>2</sub> S <sub>3</sub> .....		Ga.....	0.59277	I.77288	1.68700	0.22712

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
<b>Germanium, Ge=72.5</b>						
GeO <sub>2</sub> .....	Ge.....	0.69378	I.84122	1.44139	0.15878	
K <sub>2</sub> GeF <sub>6</sub> .....	Ge.....	0.27379	I.43742	3.65242	0.56258	
<b>Glucinum, Gl=9.1</b>						
GlO.....	Gl.....	0.36255	I.55937	2.75825	0.44063	
	GlCl <sub>2</sub> .....	3.18725	0.50342	0.31375	I.49658	
	GlSO <sub>4</sub> .4H <sub>2</sub> O.....	7.06071	0.84885	0.14163	I.15115	
<b>Gold, Au=197.2</b>						
Au.....	AuCl <sub>3</sub> .....	1.53930	0.18732	0.64965	I.81268	
	HAuCl <sub>4</sub> .4H <sub>2</sub> O....	2.08957	0.32006	0.47857	I.67994	
	KAu(CN) <sub>4</sub> .H <sub>2</sub> O...	1.81808	0.25961	0.55004	I.74039	
<b>Hydrogen, H=1.008</b>						
H <sub>2</sub> O.....	H.....	0.11190	I.04884	8.93640	0.95116	
<b>Indium, In=115</b>						
In <sub>2</sub> O.....	In.....	0.82735	I.91769	1.20867	0.08231	
In <sub>2</sub> S <sub>3</sub> .....	In.....	0.70515	I.84828	1.41813	0.15172	
<b>Iodine, I=126.97</b>						
Ag.....	HI.....	1.18578	0.07399	0.84336	I.92601	
	I.....	1.17641	0.07056	0.85004	I.92944	
AgI.....	HI.....	0.54481	I.73625	1.83548	0.26375	
	I.....	0.54052	I.73282	1.85005	0.26718	
	IO <sub>3</sub> .....	0.74488	I.87209	1.34248	0.12791	
	IO <sub>4</sub> .....	0.81297	I.91008	1.23003	0.08992	
	I <sub>2</sub> O <sub>5</sub> .....	0.71081	I.85176	1.40683	0.14824	
	I <sub>2</sub> O <sub>7</sub> .....	0.77891	I.89149	1.28382	0.10851	
Pd.....	HI.....	2.40339	0.38082	0.41608	I.61918	
	I.....	2.38439	0.37738	0.41939	I.62262	
PdI <sub>2</sub> .....	HI.....	0.71013	I.85134	1.40819	0.14866	
	I.....	0.70453	I.84790	1.41939	0.15210	
	IO <sub>3</sub> .....	0.97087	I.98716	1.03000	0.01284	
	IO <sub>4</sub> .....	1.05963	0.02516	0.94372	I.97484	
	I <sub>2</sub> O <sub>5</sub> .....	0.92648	I.96684	1.07935	0.03316	
	I <sub>2</sub> O <sub>7</sub> .....	1.01526	0.00658	0.98496	I.99342	
TI.....	HI.....	0.38655	I.58721	2.58694	0.41279	
	I.....	0.38351	I.58378	2.60747	0.41622	
	IO <sub>3</sub> .....	0.52851	I.72304	1.89213	0.27695	
	IO <sub>4</sub> .....	0.57681	I.76105	1.73364	0.23896	
	I <sub>2</sub> O <sub>5</sub> .....	0.50433	I.70272	1.98282	0.29728	
	I <sub>2</sub> O <sub>7</sub> .....	0.55265	I.74245	1.80946	0.25755	
<b>Iron, Fe=55.9</b>						
Ag.....	Fe <sub>7</sub> (CN) <sub>18</sub> .....	0.44269	I.64610	2.25890	0.35390	
	(Prussian blue)					



A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga-rithm.	Factor.	Loga-rithm.
Iron						
CN.....		Fe <sub>7</sub> (CN) <sub>18</sub> .....	1.83483	0.26360	0.54500	I.73640
CO <sub>2</sub> .....		FeO.....	1.63411	0.21328	0.61196	I.78672
		FeCO <sub>3</sub> .....	2.63406	0.42063	0.37964	I.57937
		Fe(HCO <sub>3</sub> ) <sub>2</sub> .....	2.02176	0.30573	0.49462	I.69427
Fe.....		Fe(HCO <sub>3</sub> ) <sub>2</sub> .....	3.18279	0.50281	0.31418	I.49719
		FeO.....	1.28624	0.10932	0.77747	I.89068
		Fe <sub>2</sub> O <sub>3</sub> .....	1.42935	0.15514	0.69962	I.84486
		FeSO <sub>4</sub> .....	2.71844	0.43432	0.36786	I.56568
		FeSO <sub>4</sub> .7H <sub>2</sub> O.....	4.97438	0.69674	0.20103	I.30326
		FeSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .6H <sub>2</sub> O.....	7.01733	0.84617	0.14251	I.15383
FeO.....		Fe.....	0.77747	I.89068	1.28624	0.10932
		FeCO <sub>3</sub> .....	1.61193	0.20735	0.62037	I.79265
		Fe(HCO <sub>3</sub> ) <sub>2</sub> .....	2.47450	0.39349	0.40412	I.60651
		Fe <sub>2</sub> O <sub>3</sub> .....	1.11128	0.04582	0.89988	I.95418
Fe <sub>2</sub> O <sub>3</sub> .....		Fe.....	0.69962	I.84486	1.42935	0.15514
		FeCl <sub>3</sub> .....	2.03067	0.30764	0.49244	I.69236
		FeCO <sub>3</sub> .....	1.45053	0.16153	0.68940	I.83847
		Fe(HCO <sub>3</sub> ) <sub>2</sub> .....	2.22674	0.34767	0.49909	I.65233
		FeO.....	0.89988	I.95418	1.11128	0.04582
		Fe <sub>3</sub> O <sub>4</sub> .....	0.96658	I.98524	1.03457	0.01476
		FeSO <sub>4</sub> .....	1.90187	0.27918	0.52580	I.72082
		FeSO <sub>4</sub> .7H <sub>2</sub> O.....	3.48018	0.54160	0.28734	I.45840
		FeSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .6H <sub>2</sub> O.....	4.90944	0.69103	0.20369	I.30897
		Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	2.50300	0.39846	0.39952	I.60154
		FePO <sub>4</sub> .....	1.88861	0.27614	0.52949	I.72386
FePO <sub>4</sub> .....		Fe.....	0.37044	I.56872	2.69950	0.43128
		FeO.....	0.47648	I.67804	2.09875	0.32196
FeS.....		Fe.....	0.63550	I.80312	1.57356	0.19688
		FeO.....	0.81742	I.91244	1.22337	0.08756
		Fe <sub>2</sub> O <sub>3</sub> .....	0.90836	I.95826	1.10088	0.04174
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....		FeAsO <sub>4</sub> .....	1.25450	0.09847	0.79714	I.90153
SO <sub>3</sub> .....		FeO.....	0.89807	I.95331	1.11349	0.04669
		FeSO <sub>4</sub> .....	1.89803	0.27831	0.52685	I.72169
Lanthanum, La=138.9						
La <sub>2</sub> O <sub>3</sub> .....		La.....	0.42633	I.62975	2.34558	0.37025
Lead, Pb=206.9						
Pb.....		PbO.....	1.07733	0.03235	0.92822	I.96765
		(PbCO <sub>3</sub> ) <sub>2</sub> Pb(OH) <sub>2</sub> .....	1.38890	0.14267	0.72000	I.85733

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
Lead						
PbCl <sub>2</sub> .....	Pb.....	Pb.....	0.74478	I.87203	1.34267	0.12797
	PbO.....	PbO.....	0.80238	I.90438	1.24629	0.09562
PbCrO <sub>4</sub> .....	Pb.....	Pb.....	0.64056	I.80656	1.56150	0.19354
	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O	1.17338	0.06944	0.85224	I.93056
	(PbCO <sub>3</sub> ) <sub>2</sub> Pb(OH) <sub>2</sub>	(PbCO <sub>3</sub> ) <sub>2</sub> Pb(OH) <sub>2</sub>	0.88968	I.94923	1.12400	0.05077
	PbO.....	PbO.....	0.69009	I.83891	1.44907	0.16109
PbO.....	Pb.....	Pb.....	0.92822	I.96765	1.07733	0.03235
	PbCO <sub>3</sub> .....	PbCO <sub>3</sub> .....	1.19743	0.07824	0.83514	I.92176
	Pb(NO <sub>3</sub> ) <sub>2</sub> .....	Pb(NO <sub>3</sub> ) <sub>2</sub> .....	1.48488	0.17169	0.67346	I.82831
PbO <sub>2</sub> .....	Pb.....	Pb.....	0.86604	I.93754	1.15468	0.06246
	Pb(NO <sub>3</sub> ) <sub>2</sub> .....	Pb(NO <sub>3</sub> ) <sub>2</sub> .....	1.38542	0.14158	0.72180	I.85842
PbSO <sub>4</sub> .....	Pb.....	Pb.....	0.68293	I.83438	1.46427	0.16562
	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O	1.25100	0.09726	0.79936	I.90274
	PbCO <sub>3</sub> .....	PbCO <sub>3</sub> .....	0.88097	I.94496	1.13511	0.05504
	(PbCO <sub>3</sub> ) <sub>2</sub> Pb(OH) <sub>2</sub>	(PbCO <sub>3</sub> ) <sub>2</sub> Pb(OH) <sub>2</sub>	0.94853	I.97705	1.05427	0.02295
	Pb(NO <sub>3</sub> ) <sub>2</sub> .....	Pb(NO <sub>3</sub> ) <sub>2</sub> .....	1.09249	0.03842	9.15340	0.96158
	PbO.....	PbO.....	0.73574	I.86672	1.35919	0.13328
	PbO <sub>2</sub> .....	PbO <sub>2</sub> .....	0.78855	I.89683	1.26815	0.10317
	Pb <sub>3</sub> O <sub>4</sub> .....	Pb <sub>3</sub> O <sub>4</sub> .....	0.75335	I.87699	1.32742	0.12301
PbS.....	Pb.....	Pb.....	0.86584	I.93744	1.15495	0.06256
	PbO.....	PbO.....	0.93279	I.96978	1.07207	0.03022
	PbSO <sub>4</sub> .....	PbSO <sub>4</sub> .....	1.26783	0.10306	0.78875	I.89694
Lithium, Li=7.03						
CO <sub>2</sub> .....	Li <sub>2</sub> CO <sub>3</sub> .....	Li <sub>2</sub> CO <sub>3</sub> .....	1.68318	0.22613	0.59412	I.77387
	LiHCO <sub>3</sub> .....	LiHCO <sub>3</sub> .....	1.54632	0.18930	0.64670	I.81070
	Li <sub>2</sub> O.....	Li <sub>2</sub> O.....	0.68318	I.83454	1.46373	0.16546
LiCl.....	Li.....	Li.....	0.16549	I.21877	6.04271	0.78123
	Li <sub>2</sub> O.....	Li <sub>2</sub> O.....	0.35381	I.54877	2.82637	0.45123
Li <sub>2</sub> CO <sub>3</sub> .....	Li.....	Li.....	0.18985	I.27840	5.26744	0.72160
	LiCl.....	LiCl.....	1.14718	0.05963	0.87170	I.94037
	LiHCO <sub>3</sub> .....	LiHCO <sub>3</sub> .....	1.83737	0.26240	0.54651	I.73760
	Li <sub>2</sub> O.....	Li <sub>2</sub> O.....	0.40589	I.60841	2.46372	0.39159
LiHCO <sub>3</sub> .....	Li <sub>2</sub> O.....	Li <sub>2</sub> O.....	0.22091	I.34421	4.52680	0.65579
Li <sub>2</sub> O.....	Li.....	Li.....	0.46773	I.67000	2.13795	0.33000
	Li <sub>2</sub> SO <sub>4</sub> .....	Li <sub>2</sub> SO <sub>4</sub> .....	3.66334	0.56388	0.27298	I.43612
Li <sub>3</sub> PO <sub>4</sub> .....	Li.....	Li.....	0.18167	I.25928	5.50450	0.74072
	LiCl.....	LiCl.....	1.09777	0.04051	0.91094	I.95949
	Li <sub>2</sub> CO <sub>3</sub> .....	Li <sub>2</sub> CO <sub>3</sub> .....	0.95693	I.98088	1.04500	0.01912
	LiHCO <sub>3</sub> .....	LiHCO <sub>3</sub> .....	1.75829	0.24507	0.56876	I.75493
	Li <sub>2</sub> O.....	Li <sub>2</sub> O.....	0.38841	I.58929	2.57459	0.41071
	Li <sub>2</sub> SO <sub>4</sub> .....	Li <sub>2</sub> SO <sub>4</sub> .....	1.42286	0.15316	0.70282	I.84684

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Lithium</b>						
$\text{Li}_3\text{PO}_4$ .....		$\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$ .....	1.65570	0.21898	0.60397	1.78102
$\text{Li}_2\text{SO}_4$ .....		Li.....	0.12768	1.10612	7.83217	0.89388
		LiCl.....	0.77152	1.88735	1.29612	0.11265
$\text{SO}_3$ .....		$\text{Li}_2\text{O}$ .....	0.37547	1.57457	2.66338	0.42543
		$\text{Li}_2\text{SO}_4$ .....	1.37547	0.13845	0.72704	1.86155
<b>Magnesium,</b> <b>Mg = 24.36</b>						
$\text{BaSO}_4$ .....		$\text{MgSO}_4$ .....	0.51581	1.71249	1.93870	0.28751
		$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ .....	1.05602	0.02367	0.94696	1.97633
Br.....		Mg.....	0.15233	1.18277	6.56500	0.81723
		$\text{MgBr}_2$ .....	1.15233	0.06158	0.86780	1.93842
		$\text{MgBr}_2 \cdot 6\text{H}_2\text{O}$ .....	1.82830	0.26205	0.54695	1.73795
Cl.....		Mg.....	0.34358	1.53603	2.91053	0.46397
		$\text{MgCl}_2$ .....	1.34358	0.12826	0.74428	1.87174
		$\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$ .....	2.86160	0.45761	0.34865	1.54239
$\text{CO}_2$ .....		$\text{MgCO}_3$ .....	1.91727	0.28268	0.52158	1.71732
		MgO.....	0.91727	1.96250	1.09018	0.03750
I.....		Mg.....	0.09593	2.98195	10.4243	1.01805
		$\text{MgI}_2$ .....	1.09593	0.03978	0.91247	1.96022
Mg.....		$\text{MgCO}_3$ .....	3.46306	0.53946	0.28876	1.46054
$\text{MgCO}_3$ .....		$\text{Mg}(\text{HCO}_3)_2$ .....	1.73510	0.23933	0.57633	1.76067
MgO.....		Mg.....	0.60357	1.78073	1.65681	0.21927
		$\text{MgCO}_3$ .....	2.09019	0.32019	0.47842	1.67981
		$\text{Mg}(\text{HCO}_3)_2$ .....	3.62695	0.55952	0.27573	1.44048
		$\text{MgSO}_4$ .....	2.98365	0.47475	0.33516	1.52525
$\text{Mg}_2\text{P}_2\text{O}_7$ .....		Mg.....	0.21875	1.33995	4.57140	0.66005
		$\text{MgCl}_2$ .....	0.85542	1.93218	1.16903	0.06782
		$\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$ .....	1.82613	0.26153	0.54761	1.73847
		$\text{MgCl}_2 \cdot \text{KCl} \cdot 6\text{H}_2\text{O}$ ..	2.49606	0.39725	0.40064	1.60275
		$\text{MgCO}_3$ .....	0.75754	1.87941	1.32006	0.12059
		$\text{Mg}(\text{HCO}_3)_2$ .....	1.31442	0.11874	0.76078	1.88126
		MgO.....	0.36243	1.55922	2.75919	0.44078
		$\text{MgSO}_4$ .....	1.08135	0.03397	0.92476	1.96603
		$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ .....	2.21385	0.34515	0.45170	1.65485
$\text{MgSO}_4$ .....		Mg.....	0.20229	1.30598	4.94333	0.69402
		MgO.....	0.33516	1.52525	2.98367	0.47475
SO.....		MgO.....	0.50411	1.70253	1.98368	0.29747
		$\text{MgSO}_4$ .....	1.50412	0.17728	0.66484	1.82272
		$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ .....	3.07936	0.48846	0.32474	1.51154
<b>Manganese,</b> <b>Mn = 55.0</b>						
$\text{BaSO}_4$ .....		$\text{MnSO}_4$ .....	0.64706	1.81094	1.54546	0.18906

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm
<b>Manganese,</b> <b>Mn= 55 . 0</b>						
CO <sub>2</sub> .....	MnCO <sub>3</sub> .....	MnCO <sub>3</sub> .....	2.61364	0.41725	0.38261	I.58275
	MnO.....	MnO.....	1.61364	0.20781	0.61972	I.79219
Mn.....	MnCO <sub>3</sub> .....	MnCO <sub>3</sub> .....	2.09091	0.32034	0.47825	I.67966
	MnO.....	MnO.....	1.29091	0.11090	0.77464	I.88910
	Mn <sub>2</sub> O <sub>3</sub> .....	Mn <sub>2</sub> O <sub>3</sub> .....	1.43636	0.15726	0.69622	I.84274
Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	MnCO <sub>3</sub> .....	MnCO <sub>3</sub> .....	0.64967	I.81269	1.53925	0.18731
MnO.....	MnCO <sub>3</sub> .....	MnCO <sub>3</sub> .....	1.61972	0.20944	0.61738	I.79056
	Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	2.49317	0.39675	0.40110	I.60325
	Mn <sub>2</sub> O <sub>3</sub> .....	Mn <sub>2</sub> O <sub>3</sub> .....	1.11268	0.04637	0.89876	I.95363
Mn <sub>3</sub> O <sub>4</sub> .....	Mn.....	Mn.....	0.72052	I.85765	1.38787	0.14235
	MnCO <sub>3</sub> .....	MnCO <sub>3</sub> .....	1.50659	0.17799	0.66375	I.82201
	Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	2.31900	0.36530	0.43122	I.63470
	MnO.....	MnO.....	0.93013	I.96854	1.07513	0.03146
	Mn <sub>2</sub> O <sub>3</sub> .....	Mn <sub>2</sub> O <sub>3</sub> .....	1.03493	0.01491	0.96625	I.98509
	MnO <sub>2</sub> .....	MnO <sub>2</sub> .....	1.13974	0.05681	0.87738	I.94319
	MnSO <sub>4</sub> .....	MnSO <sub>4</sub> .....	1.97895	0.29644	0.50531	I.70356
MnS.....	Mn.....	Mn.....	0.63175	I.80054	1.58293	0.19946
	MnCO <sub>3</sub> .....	MnCO <sub>3</sub> .....	1.32093	0.12088	0.75704	I.87912
	MnO.....	MnO.....	0.81553	I.91144	1.22620	0.08856
	MnSO <sub>4</sub> .....	MnSO <sub>4</sub> .....	1.73513	0.23933	0.57633	I.76067
SO <sub>3</sub> .....	MnO.....	MnO.....	0.88683	I.94784	1.12762	0.05216
	MnSO <sub>4</sub> .....	MnSO <sub>4</sub> .....	1.88684	0.27573	0.52999	I.72427
<b>Mercury,</b> <b>Hg= 200</b>						
Hg.....	HgCl <sub>2</sub> .....	HgCl <sub>2</sub> .....	1.35450	0.13178	0.73828	I.86822
	HgO.....	HgO.....	1.08000	0.03342	0.92594	I.96658
	HgS.....	HgS.....	1.16030	0.06457	0.86184	I.93543
HgCl.....	Hg.....	Hg.....	0.84944	I.92913	1.17724	0.07087
	HgCl <sub>2</sub> .....	HgCl <sub>2</sub> .....	1.15055	0.06091	0.86914	I.93909
	HgNO <sub>3</sub> .....	HgNO <sub>3</sub> .....	1.11292	0.04647	0.89852	I.95353
	Hg <sub>2</sub> O.....	Hg <sub>2</sub> O.....	0.88340	I.94616	1.13197	0.05384
	HgS.....	HgS.....	0.98560	I.99370	1.01460	0.00630
HgS.....	HgCl <sub>2</sub> .....	HgCl <sub>2</sub> .....	1.16738	0.06721	0.85662	I.93279
	Hg(CN) <sub>2</sub> .....	Hg(CN) <sub>2</sub> .....	1.08628	0.03594	0.92058	I.96406
	HgNO <sub>3</sub> .....	HgNO <sub>3</sub> .....	1.12921	0.05277	0.88558	I.94723
	Hg(NO <sub>3</sub> ) <sub>2</sub> .....	Hg(NO <sub>3</sub> ) <sub>2</sub> .....	1.39652	0.14505	0.71606	I.85495
	Hg(NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O ...	Hg(NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O ...	1.47417	0.16855	0.67834	I.83145
	Hg <sub>2</sub> O.....	Hg <sub>2</sub> O.....	0.89632	I.95246	1.11569	0.04754
	HgO.....	HgO.....	0.93078	I.96885	1.07437	0.03115
	HgSO <sub>4</sub> .....	HgSO <sub>4</sub> .....	1.27579	0.10578	0.78382	I.89422

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Molybdenum, Mo= 96.0</b>						
MoO <sub>3</sub> .....	Mo.....	0.66667	I.82391	1.50000	0.17609	
	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	1.36213	0.13422	0.73416	I.86578	
MoS <sub>3</sub> .....	Mo.....	0.49953	I.69856	2.00190	0.30144	
	MoO <sub>3</sub> .....	0.74928	I.87465	1.33459	0.12535	
	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	1.02063	0.00887	0.97978	I.99113	
(NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub> (MoO <sub>3</sub> ) <sub>12</sub> .....	MoO <sub>3</sub> .....	0.92050	I.96402	1.08638	0.03598	
	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	1.25383	0.09824	0.79755	I.90176	
PbMoO <sub>4</sub> .....	Mo.....	0.26165	I.41772	3.82191	0.58228	
	MoO <sub>3</sub> .....	0.39247	I.59381	2.54794	0.40619	
	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	0.53460	I.72803	1.87057	0.27197	
<b>Neodymium, Nd= 143.6</b>						
Nd <sub>2</sub> O <sub>3</sub> .....	Nd.....	0.85680	I.93288	1.1672	0.06712	
<b>Nickel, Ni= 58.7</b>						
Ni.....	Ni(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	4.95533	0.69507	0.20180	I.30493	
	NiO.....	1.27257	0.10468	0.78582	I.89532	
	NiSO <sub>4</sub> .7H <sub>2</sub> O.....	4.78489	0.67987	0.20899	I.32013	
NiO.....	Ni(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	3.89392	0.59039	0.25681	I.40961	
	NiSO <sub>4</sub> .7H <sub>2</sub> O.....	3.76000	0.57519	0.26596	I.42481	
NiSO <sub>4</sub> .....	Ni.....	0.37930	I.57898	2.63644	0.42102	
	Ni(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	1.87952	0.27405	0.53205	I.72595	
	NiO.....	0.48268	I.68366	2.07176	0.31634	
	NiSO <sub>4</sub> .7H <sub>2</sub> O.....	1.81488	0.25885	0.55100	I.74115	
<b>Nitrogen, N= 14.04</b>						
AgNO <sub>2</sub> .....	HNO <sub>2</sub> .....	0.30557	I.48510	3.27264	0.51490	
	N <sub>2</sub> O <sub>3</sub> .....	0.22380	I.34987	4.46820	0.65013	
KNO <sub>3</sub> .....	N <sub>2</sub> O <sub>5</sub> .....	0.53405	I.72758	1.87248	0.27242	
N.....	HNO <sub>3</sub> .....	4.49067	0.65231	0.22268	I.34769	
	NO <sub>2</sub> .....	2.70940	0.43287	0.36909	I.56713	
	N <sub>2</sub> O <sub>3</sub> .....	2.71225	0.43333	0.36870	I.56667	
	NO <sub>3</sub> .....	4.41878	0.64530	0.22631	I.35470	
	N <sub>2</sub> O <sub>5</sub> .....	3.84900	0.58535	0.25981	I.41465	
NaNO <sub>3</sub> .....	N.....	0.16500	I.21749	6.06057	0.78251	
	N <sub>2</sub> O <sub>5</sub> .....	0.63509	I.80284	1.57457	0.19716	
NH <sub>3</sub> .....	HNO <sub>3</sub> .....	3.69491	0.56760	0.27064	I.43240	
	N.....	0.82280	I.91529	1.21537	0.08471	
	N <sub>2</sub> O <sub>5</sub> .....	3.16692	0.50064	0.31577	I.49936	
NH <sub>4</sub> Cl.....	HNO <sub>3</sub> .....	1.17797	0.07114	0.86868	I.92886	
	N.....	0.51554	I.71226	1.93973	0.28774	

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
Nitrogen						
(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> .....	HNO <sub>3</sub> .....		0.28424	I.45368	3.51817	0.54632
	N.....		0.06329	2.80137	15.7989	1.19863
	N <sub>2</sub> O <sub>5</sub> .....		0.24365	I.38672	4.10470	0.61328
(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	N.....		0.20872	I.31956	4.79111	0.68044
	N <sub>2</sub> O <sub>5</sub> .....		0.81753	I.91251	1.22317	0.08749
Pt.....	HNO <sub>3</sub> .....		0.64732	I.81112	1.54482	0.18888
	N.....		0.14415	I.15881	6.93733	0.84119
	N <sub>2</sub> O <sub>5</sub> .....		0.55483	I.74416	1.80236	0.25584
SO <sub>3</sub> .....	HNO <sub>3</sub> .....		1.57504	0.19729	0.63492	I.80271
	N.....		0.35074	I.54498	2.85113	0.45502
	N <sub>2</sub> O <sub>5</sub> .....		1.34999	0.13033	0.74075	I.86967
Osmium, Os= 191						
OsO <sub>4</sub> .....	Os.....		0.74902	I.87449	1.33509	0.12551
Palladium, Pd= 106.5						
K <sub>2</sub> PdCl <sub>6</sub> .....	Pd.....		0.26793	I.42801	3.73242	0.57199
	PdCl <sub>2</sub> .2H <sub>2</sub> O.....		0.53694	I.72992	1.86243	0.27008
Pd.....	PdCl <sub>2</sub> .2H <sub>2</sub> O.....		2.00409	0.30191	0.49899	I.69809
	Pd(NO <sub>3</sub> ) <sub>2</sub> .....		2.16505	0.33547	0.46188	I.66453
PdI <sub>2</sub> .....	Pd.....		0.29547	I.47052	3.38438	0.52948
Phosphorus, P= 31.0						
Ag <sub>3</sub> PO <sub>4</sub> .....	P.....		0.07402	2.86937	13.5091	1.13063
	PO <sub>4</sub> .....		0.22684	I.35572	4.40840	0.64428
	P <sub>2</sub> O <sub>5</sub> .....		0.16954	I.22926	5.89850	0.77074
Ag <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	P.....		0.10236	I.01012	9.76975	0.98988
	PO <sub>4</sub> .....		0.31368	I.49648	3.18800	0.50352
	P <sub>2</sub> O <sub>5</sub> .....		0.23443	I.37002	4.26560	0.62998
Al <sub>2</sub> O <sub>3</sub> .....	P <sub>2</sub> O <sub>5</sub> .....		1.38943	0.14284	0.71972	I.85716
AlPO <sub>4</sub> .....	PO <sub>4</sub> .....		0.77804	I.89100	1.28529	0.10900
	P <sub>2</sub> O <sub>5</sub> .....		0.58149	I.76454	1.71972	0.23546
Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	P <sub>2</sub> O <sub>5</sub> .....		0.45762	I.66051	2.18521	0.33949
FePO <sub>4</sub> .....	PO <sub>4</sub> .....		0.62955	I.79903	1.58844	0.20097
	P <sub>2</sub> O <sub>5</sub> .....		0.47051	I.67257	2.12535	0.32743
Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....		1.27609	0.10588	0.78365	I.89412
	Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O		3.21615	0.50734	0.31093	I.49266
	NaNH <sub>4</sub> HPO <sub>4</sub> . 4H <sub>2</sub> O.....		1.87852	0.27382	0.53233	I.72618
	P.....		0.27838	I.44463	3.59225	0.55537
	PO <sub>4</sub> .....		0.85308	I.93099	1.17222	0.06901
	P <sub>2</sub> O <sub>5</sub> .....		0.63757	I.80453	1.56844	0.19547

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
Phosphorus						
(NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub>	(MoO <sub>3</sub> ) <sub>12</sub> .....	P.....	0.01651	2.21784	60.5562	2.78216
		PO <sub>4</sub> .....	0.05061	2.70421	19,7600	2.29579
P <sub>2</sub> O <sub>5</sub> .....		P <sub>2</sub> O <sub>5</sub> .....	0.03782	2.57775	26.4394	2.42225
		Na <sub>2</sub> HPO <sub>4</sub> .....	2.00148	0.30135	0.49963	1.69865
		Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O ..	5.04437	0.70281	0.19824	1.29719
		NaNH <sub>4</sub> HPO <sub>4</sub> .4H <sub>2</sub> O	2.94640	0.46929	0.33940	1.53071
U <sub>2</sub> P <sub>2</sub> O <sub>11</sub> .....		P.....	0.43662	1.64010	2.29032	0.35990
		P.....	0.08671	2.93808	11.5324	2.06192
		PO <sub>4</sub> .....	0.26573	1.42444	3.76325	0.57556
		P <sub>2</sub> O <sub>5</sub> .....	0.19860	1.29798	5.03522	0.70202
Platinum,						
Pt = 194.8						
K <sub>2</sub> PtCl <sub>6</sub> .....		H <sub>2</sub> PtCl <sub>6</sub> .6H <sub>2</sub> O.....	1.06546	0.02754	0.93855	1.97246
		Pt.....	0.40099	1.60313	2.49383	0.39687
		PtCl <sub>4</sub> .....	0.69288	1.84066	1.44323	0.15934
		PtCl <sub>4</sub> .5H <sub>2</sub> O .....	0.87830	1.94364	1.13858	0.05636
(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> .....		Pt.....	0.43910	1.64256	2.27742	0.35744
		PtCl <sub>4</sub> .....	0.75872	1.88008	1.31800	0.11992
		PtCl <sub>6</sub> .....	0.93994	1.97310	1.06390	0.02690
Pt.....		H <sub>2</sub> PtCl <sub>6</sub> .6H <sub>2</sub> O.....	2.65712	0.42441	0.37635	1.57559
		PtCl <sub>4</sub> .....	1.72793	0.23753	0.57873	1.76247
		PtCl <sub>4</sub> .5H <sub>2</sub> O .....	2.19035	0.34051	0.45655	1.65949
Potassium,						
K = 39.15						
Ag.....		KBr.....	1.10359	0.04281	0.90612	1.95719
		KCl.....	0.69119	1.83960	1.44677	0.16040
		KClO <sub>3</sub> .....	1.13592	0.05535	0.88034	1.94465
		KClO <sub>4</sub> .....	1.28417	0.10862	0.77871	1.89138
		KCN.....	0.60400	1.78104	1.65562	0.21896
		KI.....	1.53914	0.18728	0.64972	1.81272
AgBr.....		KBr.....	0.63394	1.80205	1.57743	0.19795
		KBrO <sub>3</sub> .....	0.88940	1.94910	1.12434	0.05090
AgCl.....		KCl.....	0.52030	1.71625	1.92200	0.28375
		KClO <sub>3</sub> .....	0.85507	1.93200	1.16950	0.06800
		KClO <sub>4</sub> .....	0.96666	1.98528	1.03448	0.01472
AgCN.....		KCN.....	0.48660	1.68717	2.05510	0.31283
AgI.....		KI.....	0.70720	1.84954	1.41403	0.15046
		KIO <sub>3</sub> .....	0.91155	1.95978	1.09703	0.04022
BaCrO <sub>4</sub> .....		K <sub>2</sub> CrO <sub>4</sub> .....	0.76686	1.88472	1.30400	0.11528
		K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	0.58087	1.76408	1.72156	0.23592

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga-rithm.	Factor.	Loga-rithm.
Potassium						
BaSO <sub>4</sub> .....		KHSO <sub>4</sub> .....	0.58347	I.76602	1.71388	0.23398
		K <sub>2</sub> S.....	0.47272	I.67460	2.11543	0.32540
		K <sub>2</sub> SO <sub>4</sub> .....	0.74685	I.87323	1.33903	0.12677
Br.....		K.....	0.48962	I.68986	2.04238	0.31014
		KBr.....	1.48962	0.17308	0.67130	I.82692
CaF <sub>2</sub> .....		KF.2H <sub>2</sub> O.....	2.41183	0.38235	0.41462	I.61765
CaSO <sub>4</sub> .....		KF.2H <sub>2</sub> O.....	1.38341	0.14095	0.72285	I.85905
Cl.....		K.....	1.10437	0.04312	0.90548	I.95688
		KCl.....	2.10437	0.32312	0.47520	I.67688
		KClO <sub>3</sub> .....	3.45838	0.53887	0.28915	I.46113
		KClO <sub>4</sub> .....	3.90973	0.59215	0.25577	I.40785
CO <sub>2</sub> .....		K <sub>2</sub> O.....	1.33004	0.12387	0.75185	I.87613
		K <sub>2</sub> O.....	2.14318	0.33106	0.46660	I.66894
		K <sub>2</sub> CO <sub>3</sub> .....	3.14318	0.49737	0.31815	I.50263
I.....		KI.....	1.30833	0.11672	0.76433	I.88328
		KIO <sub>3</sub> .....	1.68638	0.22696	0.59298	I.77304
K.....		K <sub>2</sub> O.....	1.20434	0.08075	0.83032	I.91925
		KNO <sub>3</sub> .....	2.58471	0.41241	0.38689	I.58759
KBr.....		K.....	0.32869	I.51678	3.04243	0.48322
		K <sub>2</sub> O.....	0.39585	I.59753	2.52622	0.40247
KCl.....		K.....	0.52480	I.71999	1.90552	0.28001
		K <sub>2</sub> CO <sub>3</sub> .....	0.92694	I.96705	1.07883	0.03295
		K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	1.97386	0.29532	0.50661	I.70468
		KHCO <sub>3</sub> .....	1.34258	0.12794	0.74481	I.87206
KCl.....		KNO <sub>3</sub> .....	1.35644	0.13240	0.73722	I.86760
		K <sub>2</sub> O.....	0.63204	I.80074	1.58219	0.19926
		K <sub>2</sub> SO <sub>4</sub> .....	1.16863	0.06768	0.85628	I.93262
		K.....	0.23567	I.37231	4.24318	0.62769
KI.....		K <sub>2</sub> O.....	0.28383	I.45306	3.52323	0.54694
		K <sub>2</sub> CO <sub>3</sub> .....	1.23140	0.09040	0.81207	I.90960
KOH.....		K <sub>2</sub> O.....	0.83964	I.92409	1.19100	0.07591
		K.....	0.83033	I.91925	1.20433	0.08075
K <sub>2</sub> O.....		K <sub>2</sub> CO <sub>3</sub> .....	1.46660	0.16631	0.68185	I.83369
		K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	3.12307	0.49458	0.32020	I.50542
		KHCO <sub>3</sub> .....	1.06210	0.02616	0.94153	I.97384
		KNO <sub>3</sub> .....	2.14613	0.33166	0.46595	I.66834
K <sub>2</sub> PtCl <sub>6</sub> .....		K <sub>2</sub> SO <sub>4</sub> .....	1.84899	0.26694	0.54083	I.73306
		K.....	0.16118	I.20730	6.20443	0.79270
		K <sub>2</sub> CO <sub>3</sub> .....	0.28469	I.45437	3.51262	0.54563
		KCl.....	0.30712	I.48731	3.25607	0.51269



A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga-rithm.	Factor.	Loga-rithm.
Potassium						
K <sub>2</sub> PtCl <sub>6</sub> .....		KHCO <sub>3</sub> .....	0.20616	I.31421	4.85056	0.68579
		KNO <sub>3</sub> .....	0.41660	I.61971	2.40044	0.38029
		K <sub>2</sub> O.....	0.19411	I.28805	5.15167	0.71195
		K <sub>2</sub> SO <sub>4</sub> .....	0.35891	I.55499	2.78619	0.44501
		K <sub>2</sub> SO <sub>4</sub> .Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . 24H <sub>2</sub> O.....	1.95373	0.29086	0.51184	I.70914
		K <sub>2</sub> SO <sub>4</sub> .Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . 24H <sub>2</sub> O.....	2.05667	0.31316	0.48623	I.68684
K <sub>2</sub> SO <sub>4</sub> .....		K.....	0.44907	I.65232	2.22679	0.34768
		K <sub>2</sub> CO <sub>3</sub> .....	0.79319	I.89938	1.26071	0.10062
		KCl.....	0.85570	I.93232	1.16865	0.06768
		KHCO <sub>3</sub> .....	1.14884	0.06026	0.87043	I.93974
		KHSO <sub>4</sub> .....	1.56250	0.19382	0.64000	I.80618
		KNO <sub>2</sub> .....	0.97717	I.98997	I.02336	0.01003
		KNO <sub>3</sub> .....	1.16070	0.06472	0.86154	I.93528
		K <sub>2</sub> O.....	0.54084	I.73307	1.84904	0.26693
		K <sub>2</sub> S.....	0.63294	I.80137	1.57989	0.19863
		K AsO <sub>4</sub> .....	1.65068	0.21766	0.60582	I.78234
Mg <sub>2</sub> As <sub>2</sub> O.....		K <sub>2</sub> HAsO <sub>4</sub> .....	1.40513	0.14772	0.71166	I.85228
Mn <sub>3</sub> O <sub>3</sub> .....		K <sub>2</sub> MnO <sub>4</sub> .....	2.58472	0.41241	0.38689	I.58759
		KMnO <sub>4</sub> .....	2.07276	0.31655	0.48244	I.68345
MnS.....		K <sub>2</sub> MnO <sub>4</sub> .....	2.26625	0.35531	0.44126	I.64469
		KMnO <sub>4</sub> .....	1.81657	0.25925	0.55049	I.74075
N.....		KNO <sub>3</sub> .....	7.20727	0.85777	0.13875	I.14223
		KNO <sub>3</sub> .....	5.93013	0.77306	0.16863	I.22694
NH <sub>3</sub> .....		KNO <sub>3</sub> .....	3.36851	0.52744	0.29687	I.47256
NO.....		KNO <sub>3</sub> .....	2.23949	0.35015	0.44653	I.64985
N <sub>2</sub> O <sub>3</sub> .....		K <sub>2</sub> O.....	0.87250	I.94077	1.14613	0.05923
N <sub>2</sub> O <sub>5</sub> .....		KNO <sub>3</sub> .....	1.87250	0.27242	0.53405	I.72758
Pt.....		K.....	0.40195	I.60417	2.48788	0.39583
		KCl.....	0.76591	I.88418	1.30564	0.11582
SiO <sub>2</sub> .....		K <sub>2</sub> SiO <sub>3</sub> .....	2.56126	0.40845	0.39044	I.59155
SO <sub>3</sub> .....		K <sub>2</sub> SO <sub>4</sub> .....	2.17787	0.33803	0.45917	I.66197
Praseodymium,						
Pr=140.5						
Pr <sub>2</sub> O <sub>3</sub> .....		Pr.....	0.85410	I.93151	1.1708	0.06849
Rhodium,						
Rh=103						
Rh.....		Na <sub>3</sub> RhCl <sub>6</sub> .....	3.73641	0.57245	0.26764	I.42755
		RhCl <sub>3</sub> .....	2.03252	0.30804	0.49199	I.69196

A		Required.		A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.	
Rubidium, Rb= 85.5							
AgCl.....	Rb.....	0.59633	I.77548	1.67696	0.22452		
	RbCl.....	0.84356	I.92612	1.18544	0.07388		
Cl.....	Rb.....	2.41183	0.38235	0.41462	I.61765		
	RbCl.....	3.41185	0.53299	0.29309	I.46701		
Rb.....	RbCl.....	1.41461	0.15064	0.70690	I.84936		
	Rb <sub>2</sub> CO <sub>3</sub> .....	1.35085	0.13061	0.74027	I.86939		
	Rb <sub>2</sub> O.....	1.09355	0.03884	0.91444	I.96116		
	Rb <sub>2</sub> SO <sub>4</sub> .....	1.56175	0.19361	0.64031	I.80639		
RbCl.....	Rb <sub>2</sub> CO <sub>3</sub> .....	0.95492	I.97997	1.04720	0.02003		
	Rb <sub>2</sub> SO <sub>4</sub> .....	1.10400	0.04297	0.90580	I.95703		
Rb <sub>2</sub> CO <sub>3</sub> .....	RbHCO <sub>3</sub> .....	1.26847	0.10328	0.78835	I.89672		
Rb <sub>2</sub> O.....	RbCl.....	0.64680	I.81077	1.54607	0.18923		
	Rb <sub>2</sub> SO <sub>4</sub> .....	1.42813	0.15477	0.70022	I.84523		
Rb <sub>2</sub> PtCl <sub>6</sub> .....	Rb.....	0.29560	I.47070	3.38300	0.52930		
	RbCl.....	0.41816	I.62134	2.39144	0.37866		
	Rb <sub>2</sub> CO.....	0.39931	I.60131	2.50433	0.39869		
	RbHCO <sub>3</sub> .....	0.50652	I.70460	1.97423	0.29540		
	Rb <sub>2</sub> O.....	0.32325	I.50954	3.09357	0.49046		
Rb <sub>2</sub> SO <sub>4</sub> .....	Rb <sub>2</sub> CO <sub>3</sub> .....	0.86496	I.93700	1.15611	0.06300		
	RbHCO <sub>3</sub> .....	1.09721	0.04029	0.91140	I.95971		
Selenium, Se= 79.2							
Se.....	H <sub>2</sub> SeO <sub>3</sub> .....	1.63148	0.21258	0.61294	I.78742		
	H <sub>2</sub> SeO <sub>4</sub> .....	1.83354	0.26329	0.54539	I.73671		
	SeO <sub>2</sub> .....	1.40400	0.14737	0.71225	I.85263		
	SeO <sub>3</sub> .....	1.60604	0.20576	0.15640	I.19424		
Silicon, Si= 28.4							
BaSiF <sub>6</sub> .....	SiF <sub>4</sub> .....	0.37312	I.57185	2.68012	0.42815		
	SiO <sub>2</sub> .....	0.21587	I.33419	4.63244	0.66581		
K <sub>2</sub> SiF <sub>6</sub> .....	SiF <sub>4</sub> .....	0.47304	I.67490	2.11400	0.32510		
	SiO <sub>2</sub> .....	0.27368	I.43723	3.65400	0.56277		
SiO <sub>2</sub> .....	H <sub>2</sub> SiO <sub>3</sub> .....	1.29829	0.11337	0.77025	I.88663		
	Si.....	0.47020	I.67228	2.12676	0.32772		
	SiF <sub>4</sub> .....	1.72848	0.23766	0.57855	I.76234		
	SiO <sub>3</sub> .....	1.26488	0.10205	0.79058	I.89795		
	SiO <sub>4</sub> .....	1.52979	0.18463	0.65368	I.81537		
	Si <sub>2</sub> O <sub>7</sub> .....	1.39732	0.14530	0.71565	I.85470		
	Si(OH) <sub>4</sub> .....	1.59656	0.20318	0.62636	I.79682		
Silver, Ag= 107.93							
Ag.....	AgNO <sub>3</sub> .....	1.57482	0.19723	0.63500	I.80277		
	Ag <sub>2</sub> O.....	1.07412	0.03105	0.93100	I.96895		

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga- rithm.	Factor.	Loga- rithm.
Silver						
AgBr .....	Ag .....	0.57443	I.75924	1.74060	0.24076	
AgCl .....	Ag .....	0.75276	I.87665	1.32847	0.12335	
	AgNO <sub>3</sub> .....	1.18545	0.07388	0.84356	I.92612	
	Ag <sub>2</sub> O .....	0.80855	I.90771	1.23677	0.09229	
AgCN .....	Ag .....	0.80563	I.90613	1.24129	0.09387	
AgI .....	Ag .....	0.45947	I.66226	2.17640	0.33774	
Ag <sub>3</sub> PO <sub>4</sub> .....	Ag .....	0.77316	I.88827	1.29339	0.11173	
Ag <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	Ag .....	0.71274	I.85293	1.40303	0.14707	
Br .....	Ag .....	1.34980	0.13027	0.74085	I.86973	
	AgBr .....	2.34980	0.37103	0.42557	I.62897	
Cl .....	Ag .....	3.04453	0.48352	0.32846	I.51648	
	AgCl .....	4.04455	0.60687	0.24725	I.39313	
I .....	Ag .....	0.85003	I.92944	1.17641	0.07056	
	AgI .....	1.85005	0.26718	0.54053	I.73282	
Sodium, Na= 23.05						
Ag .....	NaBr .....	0.95442	I.97974	1.04776	0.02026	
	NaCl .....	0.54202	I.73401	1.84496	0.26599	
	NaI .....	1.39000	0.14301	0.71943	I.85699	
AgBr .....	NaBr .....	0.54825	I.73898	1.82400	0.26102	
AgCl .....	NaCl .....	0.40801	I.61067	2.45094	0.38933	
AgI .....	NaI .....	0.63865	I.80527	1.56579	0.19473	
BaSO <sub>4</sub> .....	NaHSO <sub>4</sub> .....	0.51450	I.71139	1.94361	0.28861	
	NaHSO <sub>4</sub> .H <sub>2</sub> O .....	0.59169	I.77209	1.69008	0.22791	
	Na <sub>2</sub> S .....	0.33479	I.52477	2.98693	0.47523	
	Na <sub>2</sub> SO <sub>3</sub> .....	0.54040	I.73271	1.85050	0.26729	
	Na <sub>2</sub> SO <sub>3</sub> .7H <sub>2</sub> O .....	1.08059	0.03366	0.92542	I.96634	
	Na <sub>2</sub> SO <sub>4</sub> .....	0.60893	I.78457	1.64222	0.21543	
	Na <sub>2</sub> SO <sub>4</sub> .10H <sub>2</sub> O .....	1.38065	0.14008	0.72430	I.85992	
B <sub>2</sub> O <sub>3</sub> .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	1.44357	0.15944	0.69271	I.84056	
	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O .....	2.73044	0.43623	0.36624	I.56377	
Br .....	Na .....	0.28827	I.45980	3.46900	0.54020	
	NaBr .....	1.28827	0.11001	0.77623	I.88999	
	Na <sub>2</sub> O .....	0.38832	I.58919	2.57518	0.41081	
CaCO <sub>3</sub> .....	Na <sub>2</sub> CO <sub>3</sub> .....	1.05995	0.02529	0.94343	I.97471	
CaF <sub>2</sub> .....	NaF .....	1.07683	0.03215	0.92863	I.96785	
CaO .....	Na <sub>2</sub> CO <sub>3</sub> .....	1.89130	0.27676	0.52874	I.72324	
CaSO <sub>4</sub> .....	Na <sub>2</sub> CO <sub>3</sub> .....	0.77924	I.89167	1.28329	0.10833	
Cl .....	Na .....	0.65021	I.81306	1.53793	0.18694	
	NaCl .....	1.65021	0.21754	0.60598	I.78246	
	Na <sub>2</sub> O .....	0.87588	I.94244	1.14171	0.05756	
CO <sub>2</sub> .....	Na <sub>2</sub> CO <sub>3</sub> .....	2.41139	0.38227	0.41470	I.61773	

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Loga-rithm.	Factor.	Loga-rithm.
Sodium						
CO <sub>2</sub> .....	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	1.41137	0.14964	0.70853	1.85036
H <sub>3</sub> BO <sub>3</sub> .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	0.81462	1.91095	1.22758	0.08905
	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O ...	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O ...	1.54079	0.18774	0.64903	1.81226
I. ....	Na .....	Na .....	0.18154	1.25897	5.50850	0.74103
	NaI .....	NaI .....	1.18154	0.07245	0.84635	1.92755
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.24455	1.38836	4.08920	0.61164
KBF <sub>4</sub> .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	0.40052	1.60262	2.49678	0.39738
	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O ...	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O ...	0.75755	1.87941	1.32006	0.12059
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....	Na <sub>2</sub> HAsO <sub>3</sub> .....	Na <sub>2</sub> HAsO <sub>3</sub> .....	1.09492	0.03938	0.91332	1.96062
	Na <sub>2</sub> HAsO <sub>4</sub> .....	Na <sub>2</sub> HAsO <sub>4</sub> .....	1.19792	0.07843	0.83478	1.92157
Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	1.27608	0.10588	0.78365	1.89412
	Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O ..	Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O ..	3.21750	0.50752	0.31080	1.49248
	Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .10H <sub>2</sub> O ...	Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .10H <sub>2</sub> O ...	2.00410	0.30192	0.49898	1.69808
	NH <sub>4</sub> NaHPO <sub>4</sub> .4H <sub>2</sub> O	NH <sub>4</sub> NaHPO <sub>4</sub> .4H <sub>2</sub> O	1.87852	0.27382	0.53232	1.72618
Na Br .....	Na .....	Na .....	0.22377	1.34979	4.46900	0.65021
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.30143	1.47918	3.31753	0.52082
NaCl .....	Na .....	Na .....	0.39402	1.59552	2.53795	0.40448
	Na <sub>2</sub> CO <sub>3</sub> .....	Na <sub>2</sub> CO <sub>3</sub> .....	0.90684	1.95753	1.10273	0.04247
	NaHCO <sub>3</sub> .....	NaHCO <sub>3</sub> .....	1.43687	0.15742	0.69595	1.84258
	Na <sub>2</sub> HPO <sub>4</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	1.21456	0.08442	0.82333	1.91558
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.53077	1.72491	1.88404	0.27509
	Na <sub>2</sub> SO <sub>4</sub> .....	Na <sub>2</sub> SO <sub>4</sub> .....	1.21504	0.08459	0.82302	1.91541
Na <sub>2</sub> CO <sub>3</sub> .....	Na .....	Na .....	0.43450	1.63799	2.30147	0.36201
	NaHCO <sub>3</sub> .....	NaHCO <sub>3</sub> .....	1.58448	0.19989	0.63112	1.80011
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.58530	1.76738	1.70852	0.23262
	NaOH .....	NaOH .....	0.75510	1.87800	1.32433	0.12200
NaHCO <sub>3</sub> .....	Na .....	Na .....	0.27421	1.43809	3.64675	0.56191
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.36938	1.56748	2.70719	0.43252
NaI .....	Na .....	Na .....	0.15365	1.18652	6.50850	0.81348
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.20697	1.31591	4.83155	0.68409
NaNO <sub>3</sub> .....	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.36491	1.56218	2.74044	0.43782
Na <sub>2</sub> O .....	Na .....	Na .....	0.74235	1.87061	1.34706	0.12939
	Na <sub>2</sub> HPO <sub>4</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	4.57667	0.66055	0.21850	1.33945
Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	1.06766	0.02843	0.93664	1.97157
	Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O ..	Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O ..	2.69194	0.43007	0.37147	1.56993
Na <sub>2</sub> SO <sub>4</sub> .....	Na .....	Na .....	0.32428	1.51092	3.08379	0.48908
	Na <sub>2</sub> CO <sub>3</sub> .....	Na <sub>2</sub> CO <sub>3</sub> .....	0.74634	1.87294	1.33987	0.12706
	Na <sub>2</sub> CO <sub>3</sub> .10H <sub>2</sub> O ...	Na <sub>2</sub> CO <sub>3</sub> .10H <sub>2</sub> O ...	2.01364	0.30398	0.49661	1.69602
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.43683	1.64031	2.28921	0.35969
N .....	NaNO <sub>3</sub> .....	NaNO <sub>3</sub> .....	6.0654	0.78251	0.16500	1.21749
NH <sub>3</sub> .....	NaNO <sub>3</sub> .....	NaNO <sub>3</sub> .....	4.98656	0.69780	0.20054	1.30220

A		Required.		A		B	
B	Required.	Weighed or Found.		Factor.	Loga-rithm.	Factor.	Loga-rithm.
Sodium							
NH <sub>3</sub> .....	NaNH <sub>4</sub> HPO <sub>4</sub> ·4H <sub>2</sub> O .....			0.12259	I.08847	0.08157	2.91153
NO.....	NaNO <sub>3</sub> .....			2.83256	0.45218	0.35304	I.54782
N <sub>2</sub> O <sub>5</sub> .....	NaNO <sub>3</sub> .....			1.57458	0.19716	0.63510	I.80284
	Na <sub>2</sub> O .....			0.57457	I.75935	1.74040	0.24065
P <sub>2</sub> O <sub>5</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....			2.00148	0.30135	0.49963	I.69865
	Na <sub>2</sub> HPO <sub>4</sub> ·12H <sub>2</sub> O ..			5.04650	0.70299	0.19816	I.29701
	NaNH <sub>4</sub> HPO <sub>4</sub> ·4H <sub>2</sub> O			2.94640	0.46929	0.33940	I.53071
SO <sub>2</sub> .....	NaHSO <sub>3</sub> .....			1.62530	0.21093	0.61527	I.78907
	Na <sub>2</sub> SO <sub>3</sub> .....			1.96940	0.29434	0.50776	I.70566
	Na <sub>2</sub> SO <sub>3</sub> ·7H <sub>2</sub> O.....			3.93800	0.59528	0.25393	I.40472
SO <sub>3</sub> .....	Na <sub>2</sub> O .....			0.77567	I.88968	1.25985	0.11032
	Na <sub>2</sub> SO <sub>4</sub> .....			1.77567	0.24936	0.56317	I.75064
Strontium, Sr = 87.6							
CO <sub>2</sub> .....	SrCO <sub>3</sub> .....			3.35455	0.52563	0.29810	I.47437
SO <sub>3</sub> .....	SrO.....			1.29403	0.11194	0.77278	I.88806
	SrSO <sub>4</sub> .....			2.29400	0.36059	0.43592	I.63941
SrCO <sub>3</sub> .....	Sr .....			0.59348	I.77341	1.68496	0.22659
	SrCl <sub>2</sub> .....			1.07385	0.03094	0.93124	I.96906
	Sr(HCO <sub>3</sub> ) <sub>2</sub> .....			1.42013	0.15233	0.70416	I.84767
	Sr(NO <sub>3</sub> ) <sub>2</sub> .....			1.43415	0.15659	0.69728	I.84341
	SrO .....			0.70190	I.84627	1.42473	0.15373
SrO.....	Sr .....			0.84556	I.92714	1.18267	0.07286
	SrCl <sub>2</sub> .....			1.52992	0.18467	0.65363	I.81533
	Sr(HCO <sub>3</sub> ) <sub>2</sub> .....			2.02329	0.30606	0.49424	I.69394
SrSO <sub>4</sub> .....	Sr .....			0.47697	I.67849	2.09657	0.32151
	SrCl <sub>2</sub> .....			0.86301	I.93601	1.15876	0.06399
	SrCO <sub>3</sub> .....			0.80366	I.90507	1.24431	0.09493
	Sr(NO <sub>3</sub> ) <sub>2</sub> .....			1.15256	0.06167	0.86762	I.93833
	SrO.....			0.56409	I.75135	1.77276	0.24865
Sulphur, S = 32.06							
As <sub>2</sub> S <sub>3</sub> .....	H <sub>2</sub> S.....			0.13842	I.14120	7.22433	0.85880
	S.....			0.39069	I.59183	2.55959	0.40817
BaSO <sub>4</sub> .....	H <sub>2</sub> S.....			0.14596	I.16424	6.85114	0.83576
	H <sub>2</sub> SO <sub>3</sub> .....			0.35157	I.54601	2.84440	0.45399
	H <sub>2</sub> SO <sub>4</sub> .....			0.42010	I.62335	2.38039	0.37665
	S.....			0.13733	I.13775	7.28200	0.86225
	SO <sub>2</sub> .....			0.27439	I.43837	3.64442	0.56163
	SO <sub>3</sub> .....			0.34293	I.53520	2.91607	0.46480
	SO <sub>4</sub> .....			0.41146	I.61433	2.43035	0.38567

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Sulphur</b>						
CdS .....		H <sub>2</sub> S .....	0.23588	I.37270	4.23936	0.62730
		S .....	0.22193	I.34621	4.50600	0.65379
(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....		SO <sub>3</sub> .....	0.60559	I.78218	1.65127	0.21782
		H <sub>2</sub> SO <sub>4</sub> .....	0.74185	I.87032	1.34797	0.12968
SO <sub>3</sub> .....		H <sub>2</sub> S .....	0.42563	I.62903	2.34947	0.37097
		H <sub>2</sub> SO <sub>4</sub> .....	1.22500	0.08814	0.81632	I.91186
<b>Tantalum, Ta=183</b>						
Ta .....		Ta <sub>2</sub> O <sub>5</sub> .....	1.2185	0.08585	0.82063	I.91415
		TaCl <sub>5</sub> .....	1.96855	0.29415	0.50799	I.70585
Ta <sub>2</sub> O <sub>5</sub> .....		TaCl <sub>5</sub> .....	1.61548	0.20830	0.61902	I.79170
		Ta <sub>2</sub> O <sub>4</sub> .....	0.96414	I.98414	1.03719	0.01586
<b>Tellurium, Te=127.6</b>						
Te .....		H <sub>2</sub> TeO <sub>4</sub> .....	1.51736	0.18109	0.65903	I.81891
		H <sub>2</sub> TeO <sub>4</sub> .2H <sub>2</sub> O .....	1.79979	0.25522	0.55562	I.74478
		TeO <sub>2</sub> .....	1.25077	0.09718	0.79920	I.90282
		TeO <sub>3</sub> .....	1.37616	0.13867	0.72665	I.86133
(TeO <sub>2</sub> ) <sub>2</sub> SO <sub>3</sub> .....		Te .....	0.31958	I.50459	3.12900	0.49541
<b>Thallium, Tl=204.1</b>						
Tl .....		TlCl .....	1.17370	0.06956	0.85200	I.93044
		Tl <sub>2</sub> CO <sub>3</sub> .....	1.14700	0.05956	0.87184	I.94044
		TlI .....	1.62211	0.21008	0.61648	I.78992
		TlNO <sub>3</sub> .....	1.30382	0.11522	0.76697	I.88478
		Tl <sub>2</sub> O .....	1.03920	0.01670	0.96227	I.98330
Tl <sub>2</sub> CrO <sub>4</sub> .....		Tl .....	0.77855	I.89129	1.28442	0.10871
TlHSO <sub>4</sub> .....		Tl .....	0.67768	I.83103	1.47500	0.16897
TlI .....		Tl .....	0.61648	I.78992	1.62211	0.21008
Tl <sub>2</sub> PtCl <sub>6</sub> .....		Tl .....	0.50043	I.69934	1.99829	0.30066
		TlCl .....	0.58736	I.76890	1.70256	0.23110
		Tl <sub>2</sub> CO <sub>3</sub> .....	0.57399	I.75890	1.74220	0.24110
		TlI .....	0.81173	I.90942	1.23191	0.09058
		TlNO <sub>3</sub> .....	0.65254	I.81461	1.53246	0.18539
		Tl <sub>2</sub> O .....	0.52004	I.71604	1.92291	0.28396
		Tl <sub>2</sub> SO <sub>4</sub> .....	0.61819	I.79112	1.61763	0.20888
Tl <sub>2</sub> SO <sub>4</sub> .....		Tl .....	0.80950	I.90822	1.23531	0.09178
<b>Thorium, Th=232.5</b>						
ThO <sub>2</sub> .....		Th .....	0.87900	I.94399	1.13766	0.05601
		ThCl <sub>4</sub> .....	1.41510	0.15079	0.70666	I.84921
		Th(NO <sub>3</sub> ) <sub>4</sub> .6H <sub>2</sub> O ..	2.22585	0.34750	0.44926	I.65250

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
Tin, Sn=119.0						
Sn.....		SnCl <sub>2</sub> .....	1.59578	0.20297	0.62665	I.79703
		SnCl <sub>2</sub> .2H <sub>2</sub> O.....	1.89859	0.27843	0.52671	I.72157
		SnCl <sub>4</sub> .....	2.19160	0.34076	0.45629	I.65924
		SnCl <sub>4</sub> .(NH <sub>4</sub> Cl) <sub>2</sub> ...	3.09107	0.49011	0.32352	I.50989
		SnO.....	1.13444	0.05478	0.88150	I.94522
		SnO <sub>2</sub> .....	1.26891	0.10343	0.78807	I.89657
SnO <sub>2</sub> .....		Sn.....	0.78808	I.89657	1.26891	0.10343
		SnCl <sub>2</sub> .....	1.25759	0.09954	0.79516	I.90046
		SnCl <sub>2</sub> .2H <sub>2</sub> O.....	1.49624	0.17500	0.66834	I.82500
		SnCl <sub>4</sub> .....	1.72716	0.23733	0.57899	I.76267
		SnCl <sub>4</sub> .(NH <sub>4</sub> Cl) <sub>2</sub> ...	2.43600	0.38668	0.41051	I.61332
		SnO.....	0.89402	I.95135	1.11854	0.04865
Titanium, Ti= 48.1						
TiO <sub>2</sub> .....		Ti.....	0.60050	I.77851	1.66531	0.22149
Tungsten, W=184						
WO <sub>2</sub> .....		W.....	0.85185	I.93036	1.17392	0.06964
WO <sub>3</sub> .....		W.....	0.79310	I.89933	1.26086	0.10067
Uranium, U= 238.5						
UO <sub>2</sub> .....		U.....	0.88170	I.94532	1.13418	0.05468
U <sub>3</sub> O <sub>8</sub> .....		U.....	0.84824	I.92852	1.17892	0.07148
		UO <sub>2</sub> .....	0.96205	I.98320	1.03944	0.01680
		UO <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O .	1.78780	0.25232	0.55935	I.74768
U <sub>2</sub> P <sub>2</sub> O <sub>11</sub> .....		U.....	0.65194	I.82421	1.49897	0.17579
		UO <sub>2</sub> .....	0.75663	I.87889	1.32164	0.12111
Vanadium,						
V=51.2						
V <sub>2</sub> O <sub>5</sub> .....		V.....	0.56140	I.74928	1.78124	0.25072
		VO <sub>4</sub> .....	1.26317	0.10146	0.79166	I.89854
Ytterbium,						
Yb=173						
Yb <sub>2</sub> O <sub>3</sub> .....		Yb.....	0.87817	I.94358	1.13874	0.05642
Yttrium, Y= 89						
Y <sub>2</sub> O <sub>3</sub> .....		Y.....	0.78761	I.89631	1.26974	0.10369
Zinc, Zn= 65.4						
BaSO <sub>4</sub> .....		ZnSO <sub>4</sub> .7H <sub>2</sub> O.....	1.23180	0.09054	0.81182	I.90946
Zn.....		ZnO.....	1.24465	0.09505	0.80343	I.90495
ZnO.....		ZnCO <sub>3</sub> .....	1.54054	0.18767	0.64913	I.81233
		ZnCl <sub>2</sub> .....	1.67445	0.22387	0.59722	I.77613
		ZnSO <sub>4</sub> .7H <sub>2</sub> O.....	3.53292	0.54813	0.28305	I.45187
Zn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....		Zn.....	0.21457	I.33157	4.66044	0.66843
		ZnO.....	0.26706	I.42661	3.74445	0.57339

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Zinc</b>						
ZnS.....		Zn.....	0.67104	1.82675	1.49021	0.17325
		ZnO.....	0.83521	1.92180	1.19731	0.07820
		ZnSO <sub>4</sub> .7H <sub>2</sub> O.....	2.95067	0.46962	0.33891	1.53008
<b>Zirconium,</b> Zr=90.6						
ZrO <sub>2</sub> .....		Zr.....	0.73899	1.86864	1.35319	0.13136

\* The factors and logarithms in this column are used when the substances given in the first column are weighed or found, while those in the second column are required.

† The factors and logarithms in this column are used when the substances given in the second column are weighed or found, and those in the first column are required.



# VI. — FACTORS FOR THE CALCULATION OF INDIRECT GRAVIMETRIC ANALYSES

CALCULATED BY ALBERT F. SEEKER

Found.		Sought.	Factors and Their Logarithms.	
a.	b.			
AgBr + AgCl	Ag	Br	1.7963 (log .25439)	$a - 2.3864$ (log .37774) $b$
		Cl	1.3865 (log .14191)	$b - .79640$ (log 1.90113) $a$
	AgCl	Br	1.7965 (log .25443)	$(a - b)$
		Cl	1.04375 (log .01861)	$b - 0.7965$ (log 1.90119) $a$
AgBr + AgI	Ag	Br	3.7018 (log .56841)	$b - 1.7009$ (log .23067) $a$
		I	2.7009 (log .43150)	$a - 4.7019$ (log .67227) $b$
	AgCl	Br	2.7869 (log .44512)	$b - 1.7011$ (log .23073) $a$
		I	2.7013 (log .43156)	$a - 3.5398$ (log .54898) $b$
AgCl + AgI	Ag	Cl	.84304 (log 1.92585)	$b - .38735$ (log 1.58811) $a$
		I	1.3874 (log .14220)	$a - 1.84304$ (log .26554) $b$
	AgCl	Cl	.63462 (log 1.80251)	$b - .38736$ (log 1.58812) $a$
		I	1.3874 (log .14220)	$(a - b)$
KCl + NaCl	AgCl	K	2.4317 (log .38590)	$a - .99213$ (log 1.99657) $b$
		Na	.74488 (log 1.87209)	$b - 1.4317$ (log .15584) $a$
	Cl	K	2.4318 (log .38591)	$a - 4.0128$ (log .60345) $b$
		Na	3.0128 (log .47897)	$b - 1.4317$ (log .15585) $a$
	K <sub>2</sub> SO <sub>4</sub> + Na <sub>2</sub> SO <sub>4</sub>	K	13.745 (log 1.13815)	$a - 11.313$ (log 1.05356) $b$
		Na	8.4934 (log .92908)	$b - 9.9258$ (log .99676) $a$
KCl + KBr	AgCl + AgBr	Cl	1.3794 (log .13969)	$b - 2.1759$ (log .33765) $a$
		Br	3.7451 (log .57346)	$a - 1.9485$ (log .28971) $b$
	AgCl	Cl	.66170 (log 1.82066)	$b - .79652$ (log 1.90120) $a$
		Br	1.7965 (log .25444)	$a - .93476$ (log 1.97070) $b$
	KCl	Cl	1.2715 (log .10433)	$b - .79638$ (log 1.90112) $a$
		Br	1.7962 (log .25436)	$a - 1.7962$ (log .25436) $b$
	K <sub>2</sub> SO <sub>4</sub>	Cl	1.0881 (log .03665)	$b - .79638$ (log 1.90112) $a$
		Br	1.7963 (log .25439)	$a - 1.5371$ (log .18669) $b$
KCl + KI	AgCl + AgI	Cl	.93558 (log 1.97108)	$b - 1.3229$ (log .12154) $a$
		I	2.8921 (log .46122)	$a - 1.5048$ (log .17748) $b$
	AgCl	Cl	.44879 (log 1.65204)	$b - .38735$ (log 1.58811) $a$
		I	1.3874 (log .14219)	$a - .72183$ (log 1.85844) $b$
	KCl	Cl	.86256 (log 1.93579)	$b - .38735$ (log 1.58811) $a$
		I	1.3874 (log .14219)	$a - 1.3874$ (log .14219) $b$

Found.		Sought.	Factors and Their Logarithms.
a.	b.		
KCl + KI	K <sub>2</sub> SO <sub>4</sub>	Cl I	7.3808 (log I.86811) <i>b</i> — .38735 (log I.58811) <i>a</i> 1.3874 (log .14219) <i>a</i> — 1.1872 (log .07451) <i>b</i>
KBr + KI	AgBr + AgI	Br I	4.1068 (log .61350) <i>b</i> — 5.8071 (log .76396) <i>a</i> 7.3762 (log .86783) <i>a</i> — 4.6759 (log .66986) <i>b</i>
	AgCl	Br I	1.9705 (log .29458) <i>b</i> — 1.7008 (log .23065) <i>a</i> 2.7008 (log .43149) <i>a</i> — 2.2436 (log .35094) <i>b</i>
	KCl	Br I	3.7873 (log .57833) <i>b</i> — 1.7008 (log .23065) <i>a</i> 2.7008 (log .43149) <i>a</i> — 4.3121 (log .63469) <i>b</i>
	K <sub>2</sub> SO <sub>4</sub>	Br I	3.2408 (log .51065) <i>b</i> — 1.7008 (log .23065) <i>a</i> 2.7008 (log .43149) <i>a</i> — 3.6898 (log .56701) <i>b</i>
K <sub>2</sub> SO <sub>4</sub> + Na <sub>2</sub> SO <sub>4</sub>	BaSO <sub>4</sub>	K Na	2.4316 (log .38589) <i>a</i> — 1.4807 (log .17046) <i>b</i> 1.0692 (log .02907) <i>b</i> — 1.4316 (log .15583) <i>a</i>
Na <sub>2</sub> SO <sub>4</sub> + Li <sub>2</sub> SO <sub>4</sub>	BaSO <sub>4</sub>	Na Li	1.4388 (log .15801) <i>a</i> — .63339 (log I.83167) <i>b</i> .26722 (log I.42687) <i>b</i> — .43883 (log I.64230) <i>a</i>
LiCl + NaCl	AgCl	Li Na	.17901 (log I.25288) <i>b</i> — .43874 (log I.64221) <i>a</i> 1.4386 (log .15793) <i>a</i> — .42620 (log I.62961) <i>b</i>
K <sub>2</sub> PtCl <sub>6</sub> + Rb <sub>2</sub> PtCl <sub>6</sub>	Pt	K Rb	2.5086 (log .39943) <i>b</i> — .84474 (log I.92672) <i>a</i> 1.8448 (log .26596) <i>a</i> — 4.6008 (log .66283) <i>b</i>
	K <sub>2</sub> SO <sub>4</sub> + Rb <sub>2</sub> SO <sub>4</sub>	K Rb	.72428 (log I.85991) <i>a</i> — 1.5689 (log .19560) <i>b</i> 2.8774 (log .45900) <i>b</i> — 1.0328 (log .01400) <i>a</i>
Rb <sub>2</sub> PtCl <sub>6</sub> + Cs <sub>2</sub> PtCl <sub>6</sub>	Pt	Rb Cs	6.2336 (log .79474) <i>b</i> — 1.8035 (log .25612) <i>a</i> 2.8034 (log .44768) <i>a</i> — 8.3250 (log .92038) <i>b</i>
	Rb <sub>2</sub> SO <sub>4</sub> + Cs <sub>2</sub> SO <sub>4</sub>	Rb Cs	2.0961 (log .32142) <i>a</i> — 3.9003 (log .59109) <i>b</i> 5.2087 (log .71673) <i>b</i> — 2.4046 (log .38105) <i>a</i>
CaCO <sub>3</sub> + SrCO <sub>3</sub>	CO <sub>2</sub>	Ca Sr	2.8315 (log .45202) <i>b</i> — .84408 (log I.92638) <i>a</i> 1.8440 (log .26576) <i>a</i> — 4.1948 (log .62272) <i>b</i>
	CaSO <sub>4</sub> + SrSO <sub>4</sub>	Ca Sr	3.4544 (log .53837) <i>b</i> — 4.2982 (log .63329) <i>a</i> 6.9612 (log .84268) <i>a</i> — 5.1176 (log .70907) <i>b</i>
CaCO <sub>3</sub> + BaCO <sub>3</sub>	CO <sub>2</sub>	Ca Ba	1.8489 (log .26692) <i>b</i> — .41212 (log I.61502) <i>a</i> 1.4121 (log .14986) <i>a</i> — 3.2125 (log .50685) <i>b</i>
	CaSO <sub>4</sub> + BaSO <sub>4</sub>	Ca Ba	2.2552 (log .35318) <i>b</i> — 2.6671 (log .42604) <i>a</i> 5.3302 (log .72675) <i>a</i> — 3.9184 (log .59311) <i>b</i>
BaCO <sub>3</sub> + SrCO <sub>3</sub>	CO <sub>2</sub>	Ba Sr	2.7589 (log .44074) <i>a</i> — 9.2550 (log .96638) <i>b</i> 7.8913 (log .89715) <i>b</i> — 1.7589 (log .24525) <i>a</i>
	BaSO <sub>4</sub> + SrSO <sub>4</sub>	Ba Sr	14.056 (log 1.14786) <i>a</i> — 11.296 (log 1.05294) <i>b</i> 9.6318 (log .98371) <i>b</i> — 11.391 (log 1.05657) <i>a</i>

# VII. — MOLECULAR AND ATOMIC WEIGHTS AND THEIR LOGARITHMS

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
Ag.....	107.93	2.03314	AsCl <sub>3</sub> .....	181.35	2.25852
Ag <sub>2</sub> .....	215.86	2.33417	$\frac{1}{2}$ As <sub>2</sub> O <sub>3</sub> .....	99.0	1.99564
Ag <sub>3</sub> AsO <sub>4</sub> .....	462.79	2.66538	As <sub>2</sub> O <sub>3</sub> .....	198.0	2.29667
AgBr.....	187.89	2.27391	AsO <sub>3</sub> .....	123.0	2.08991
AgCN.....	133.97	2.12700	(AsO <sub>3</sub> ) <sub>2</sub> .....	246.0	2.39094
AgCl.....	143.88	2.15649	As <sub>2</sub> O <sub>5</sub> .....	230.0	2.36173
AgI.....	234.90	2.37088	AsO <sub>4</sub> .....	139.0	2.14301
AgIO <sub>3</sub> .....	282.90	2.45163	(AsO <sub>4</sub> ) <sub>2</sub> .....	278.0	2.44404
AgNO <sub>2</sub> .....	153.97	2.18744	As <sub>2</sub> S <sub>3</sub> .....	246.18	2.39125
AgNO <sub>3</sub> .....	169.97	2.23037	As <sub>2</sub> S <sub>5</sub> .....	310.3	2.49178
$\frac{1}{2}$ Ag <sub>2</sub> O.....	115.93	2.06419			
Ag <sub>2</sub> O.....	231.86	2.36522	Au.....	197.2	2.29491
Ag <sub>3</sub> PO <sub>4</sub> .....	418.79	2.62200	AuCl <sub>3</sub> .....	303.55	2.48223
$\frac{1}{2}$ Ag <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	302.86	2.48124	AuCl <sub>3</sub> .2H <sub>2</sub> O...	339.58	2.53094
Ag <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	605.72	2.78227			
Ag <sub>2</sub> S.....	247.92	2.39431	B.....	11.0	1.04139
			B <sub>2</sub> .....	22.0	1.34242
Al.....	27.1	1.43297	B <sub>2</sub> O <sub>3</sub> .....	70.0	1.84510
Al <sub>2</sub> .....	54.2	1.73400	(B <sub>2</sub> O <sub>3</sub> ) <sub>2</sub> .....	140.0	2.14613
Al <sub>2</sub> C <sub>3</sub> .....	144.4	2.15957			
AlCl <sub>3</sub> .....	133.45	2.12532	$\frac{1}{2}$ Ba.....	68.7	1.83696
(AlCl <sub>3</sub> ) <sub>2</sub> .....	266.90	2.42635	Ba.....	137.4	2.13799
AlCl <sub>3</sub> .6H <sub>2</sub> O....	241.55	2.38301	BaCl <sub>2</sub> .....	208.30	2.31869
AlF <sub>3</sub> .....	84.1	1.92480	BaCl <sub>2</sub> .2H <sub>2</sub> O....	244.332	2.38798
(AlF <sub>3</sub> ) <sub>2</sub> .....	168.2	2.22583	BaCO <sub>3</sub> .....	197.4	2.29535
AlK(SO <sub>4</sub> ) <sub>2</sub> .			BaCrO <sub>4</sub> .....	253.5	2.40398
12H <sub>2</sub> O.....	474.56	2.67629	BaF <sub>2</sub> .....	175.4	2.24388
AlNH <sub>4</sub> (SO <sub>4</sub> ) <sub>2</sub> .			Ba(HCO <sub>3</sub> ) <sub>2</sub> ....	259.416	2.41400
12H <sub>2</sub> O.....	453.49	2.65657	Ba(NO <sub>3</sub> ) <sub>2</sub> ....	261.48	2.41744
AlNa <sub>3</sub> F <sub>6</sub> .....	210.25	2.32274	BaO.....	153.4	2.18583
$\frac{1}{2}$ Al <sub>2</sub> O <sub>3</sub> .....	51.1	1.70842	BaO <sub>2</sub> .....	169.4	2.22891
Al <sub>2</sub> O <sub>3</sub> .....	102.2	2.00945	BaO <sub>2</sub> .8H <sub>2</sub> O....	313.53	2.49628
AlPO <sub>4</sub> .....	122.1	2.08672	Ba(OH) <sub>2</sub> .....	171.416	2.23405
(AlPO <sub>4</sub> ) <sub>2</sub> .....	244.2	2.38775	Ba(OH) <sub>2</sub> .8H <sub>2</sub> O	315.55	2.49907
Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	342.38	2.53451	BaS.....	169.46	2.22907
Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O	666.668	2.82391	BaSiF <sub>6</sub> .....	279.8	2.44685
			BaSO <sub>4</sub> .....	233.46	2.36821
As.....	75.0	1.87506	(BaSO <sub>4</sub> ) <sub>2</sub> .....	466.92	2.66924
As <sub>2</sub> .....	150.0	2.17609			

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
(BaSO <sub>4</sub> ) <sub>3</sub> .....	700.38	2.84534	Ca.....	40.1	1.60314
BaS <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O...	267.54	2.42738	Ca <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> ....	398.3	2.60021
Be.....	9.1	0.95904	CaC <sub>2</sub> .....	64.1	1.80686
BeCl <sub>2</sub> .....	80.0	1.90309	CaCl <sub>2</sub> .....	111.0	2.04532
BeO.....	25.1	1.39967	CaCl <sub>2</sub> .6H <sub>2</sub> O...	219.10	2.34064
BeSO <sub>4</sub> .4H <sub>2</sub> O...	177.224	2.24852	CaCO <sub>3</sub> .....	100.1	2.00043
Bi.....	208.5	2.31911	CaF <sub>2</sub> .....	78.1	1.89265
Bi <sub>2</sub> .....	417.0	2.62014	(CaF <sub>2</sub> ) <sub>2</sub> .....	156.2	2.19368
BiAsO <sub>4</sub> .....	347.50	2.54095	(CaF <sub>2</sub> ) <sub>3</sub> .....	234.3	2.36977
Bi(NO <sub>3</sub> ) <sub>3</sub> .5H <sub>2</sub> O.	484.70	2.68547	Ca(HCO <sub>3</sub> ) <sub>2</sub> ....	174.12	2.24084
$\frac{1}{2}$ Bi <sub>2</sub> O <sub>3</sub> .....	232.5	2.36642	Ca(NO <sub>3</sub> ) <sub>2</sub> .....	164.18	2.21532
Bi <sub>2</sub> O <sub>3</sub> .....	465.0	2.66745	CaO.....	56.1	1.74896
BiOCl.....	259.95	2.41489	(CaO) <sub>2</sub> .....	112.2	2.04999
BiONO <sub>3</sub> .....	286.54	2.45718	(CaO) <sub>3</sub> .....	168.3	2.22608
Bi <sub>2</sub> S <sub>3</sub> .....	513.18	2.71027	CaOCl <sub>2</sub> .....	127.0	2.10380
Br.....	79.96	1.90287	Ca(OH) <sub>2</sub> .....	74.116	1.86992
Br <sub>2</sub> .....	159.92	2.20390	Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> ....	310.3	2.49178
Br <sub>3</sub> .....	239.88	2.37999	CaS.....	72.16	1.85830
Br <sub>4</sub> .....	319.84	2.50493	CaSO <sub>4</sub> .....	136.16	2.13405
BrO <sub>3</sub> .....	127.96	2.10707	(CaSO <sub>4</sub> ) <sub>2</sub> .....	272.32	2.43508
C.....	12.00	1.07918	(CaSO <sub>4</sub> ) <sub>3</sub> .....	408.48	2.61117
C <sub>2</sub> .....	24.00	1.38021	CaSO <sub>4</sub> .2H <sub>2</sub> O..	172.19	2.23601
CH <sub>3</sub> .....	15.024	1.17689	CaSiO <sub>3</sub> .....	116.5	2.06633
CH <sub>4</sub> .....	16.032	1.20498	CaWO <sub>4</sub> .....	288.1	2.45954
C <sub>2</sub> H <sub>2</sub> .....	26.016	1.41524	Cd.....	112.4	2.05077
C <sub>2</sub> H <sub>4</sub> .....	28.032	1.44765	CdCl <sub>2</sub> .....	183.3	2.26316
C <sub>2</sub> H <sub>5</sub> .....	29.04	1.46300	CdCl <sub>2</sub> .2H <sub>2</sub> O...	219.33	2.34110
C <sub>2</sub> H <sub>6</sub> .....	30.048	1.47781	CdCO <sub>3</sub> .....	172.4	2.23654
C <sub>6</sub> H <sub>6</sub> .....	78.05	1.89237	Cd(NO <sub>3</sub> ) <sub>2</sub> .....	236.48	2.37379
CN.....	26.04	1.41564	Cd(NO <sub>3</sub> ) <sub>2</sub> .4H <sub>2</sub> O	308.54	2.48932
CNS.....	58.10	1.76418	CdO.....	128.4	2.10857
CO.....	28.00	1.44716	CdS.....	144.46	2.15975
CO <sub>2</sub> .....	44.00	1.64345	CdSO <sub>4</sub> .....	208.46	2.31903
(CO <sub>2</sub> ) <sub>2</sub> .....	88.00	1.94448	CdSO <sub>4</sub> .2 $\frac{1}{2}$ H <sub>2</sub> O.	256.50	2.40909
CO <sub>3</sub> .....	60.00	1.77815	Ce.....	140.25	2.14691
CS <sub>2</sub> .....	76.12	1.88150	Ce <sub>2</sub> .....	280.5	2.44793
$\frac{1}{2}$ Ca.....	20.05	1.30211	Ce(NO <sub>3</sub> ) <sub>4</sub> .....	388.41	2.58929
			Ce(NO <sub>3</sub> ) <sub>4</sub> .(NH <sub>4</sub>		
			NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O..	566.81	2.75344
			CeO <sub>2</sub> .....	172.25	2.23616
			(CeO <sub>2</sub> ) <sub>2</sub> .....	344.5	2.53719

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
Ce <sub>2</sub> O <sub>3</sub> .....	328.5	2 51654	(CsCl) <sub>2</sub> .....	336.70	2.52724
Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	568.68	2.75487	Ca <sub>2</sub> CO <sub>3</sub> .....	325.8	2.51295
Cl.....	35.45	1.54962	CsHCO <sub>3</sub> .....	193.91	2.28762
Cl <sub>2</sub> .....	70.90	1.85065	Ca <sub>2</sub> O.....	281.8	2.44994
Cl <sub>3</sub> .....	106.35	2.02674	Ca <sub>2</sub> PtCl <sub>6</sub> .....	673.3	2.82821
Cl <sub>4</sub> .....	141.80	2.15168	Ca <sub>2</sub> SO <sub>4</sub> .....	361.86	2.55854
Cl <sub>5</sub> .....	177.25	2 24859	Cu.....	63.6	1.80346
Cl <sub>2</sub> O <sub>3</sub> .....	150.90	2 17869	Cu <sub>2</sub> .....	127.2	2.10449
ClO <sub>2</sub> .....	83.45	1.92143	$\frac{1}{2}$ Cu <sub>2</sub> {C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> } As <sub>2</sub> O <sub>3</sub>	253.61	2.40417
Cl <sub>2</sub> O <sub>7</sub> .....	182.90	2 26221	CuCl.....	99.05	1.99585
ClO <sub>4</sub> .....	99.45	1 99760	CuCl <sub>2</sub> .....	134.50	2 12872
Co.....	59	1 77085	CuCl <sub>2</sub> ·2H <sub>2</sub> O....	170.53	2.23180
Co <sub>2</sub> .....	118	2.07188	CuCNS.....	121.70	2 08529
Co <sub>3</sub> .....	177	2.24797	CuI.....	190.57	2.28005
CoCl <sub>2</sub> ·6H <sub>2</sub> O....	238.00	2.37658	CuFeS <sub>2</sub> .....	183.62	2.26392
Co(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	291.18	2 46415	Cu(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	295.78	2.47097
Co(NO <sub>3</sub> ) <sub>2</sub> · (KNO <sub>3</sub> ) <sub>2</sub> .....	452.69	2.65580	Cu <sub>2</sub> O.....	143.2	2 15594
CoO.....	75.	1.87506	CuO.....	79.6	1.90091
(CoO) <sub>2</sub> .....	150.	2.17609	Cu <sub>2</sub> S.....	159.26	2.20211
Co <sub>2</sub> O <sub>4</sub> .....	241	2 38202	CuSO <sub>4</sub> .....	159.66	2 20319
CoSO <sub>4</sub> .....	155.06	2.19050	CuSO <sub>4</sub> ·5H <sub>2</sub> O ..	249.74	2.39749
CoSO <sub>4</sub> ·7H <sub>2</sub> O ..	281.17	2.44897	F.....	19	1.27875
(CoSO <sub>4</sub> ) <sub>2</sub> ·(K <sub>2</sub> SO <sub>4</sub> ) <sub>2</sub> .....	833.20	2.92075	Fe... ..	55.9	1.74741
Cr.....	52.1	1.71684	Fe <sub>2</sub> .....	111.8	2.04844
Cr <sub>2</sub> .....	104.2	2.01787	FeAsO <sub>4</sub> .....	194.9	2.28981
$\frac{1}{2}$ Cr <sub>2</sub> O <sub>3</sub> .....	76.1	1.88138	FeCl <sub>2</sub> .....	162.25	2.21019
Cr <sub>2</sub> O <sub>3</sub> .....	152.2	2.18241	FeCl <sub>3</sub> ·6H <sub>2</sub> O....	270.35	2 43193
CrO <sub>2</sub> .....	100.1	2 00043	Fe <sub>2</sub> (CN) <sub>10</sub> .....	860.02	2.93451
(CrO <sub>2</sub> ) <sub>2</sub> .....	200.2	2.30146	FeCO <sub>3</sub> .....	115.9	2.06408
CrO <sub>3</sub> .....	116.1	2.06483	$\frac{1}{2}$ Fe(HCO <sub>3</sub> ) <sub>2</sub> ..	88.96	1.94918
Cr <sub>2</sub> O <sub>7</sub> .....	216.2	2.33486	Fe(HCO <sub>3</sub> ) <sub>2</sub> .....	177.92	2 25022
$\frac{1}{2}$ Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> · 18H <sub>2</sub> O ..	358.33	2.55429	FeO.....	71.9	1.85673
Cs.....	132.9	2.12352	$\frac{1}{2}$ Fe <sub>2</sub> O <sub>3</sub> .....	79.9	1 90255
Ca.....	265.8	2.42455	Fe <sub>2</sub> O <sub>3</sub> .....	159.8	2.20358
CaAl(SO <sub>4</sub> ) <sub>2</sub> · 12H <sub>2</sub> O.....	568.31	2 75459	$\frac{1}{3}$ Fe <sub>2</sub> O <sub>4</sub> .....	77.23	1.88779
CaCl.....	168.35	2.22621	Fe <sub>2</sub> O <sub>4</sub> .....	231.7	2.36493
			FePO <sub>4</sub> .....	150.9	2.17869
			FeS.....	87.96	1.94429
			FeS <sub>2</sub> .....	120.02	2 07925
			FeSO <sub>4</sub> .....	151.96	2.18173

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
FeSO <sub>4</sub> .7H <sub>2</sub> O . . .	278.07	2.44415	HNO <sub>2</sub> . . . . .	47.048	1.67254
FeSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub>			HNO <sub>3</sub> . . . . .	63.048	1.79968
SO <sub>4</sub> .6H <sub>2</sub> O . . .	392.26	2.59358	(HNO <sub>3</sub> ) <sub>2</sub> . . . . .	126.10	2.10071
$\frac{1}{2}$ Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . . . .	199.99	2.30101	HNaCO <sub>3</sub> . . . . .	84.06	1.92458
Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . . . . .	399.98	2.60204	HNa <sub>2</sub> PO <sub>4</sub> .		
			12H <sub>2</sub> O . . . . .	358.3	2.55425
Ga . . . . .	70	1.84510	HO . . . . .	17.008	1.23065
Ga <sub>2</sub> O <sub>3</sub> . . . . .	188.	2.27416	H <sub>2</sub> O . . . . .	18.016	1.25565
Ga <sub>2</sub> S <sub>3</sub> . . . . .	236.18	2.37324	H <sub>2</sub> O <sub>2</sub> . . . . .	34.016	1.53168
			H <sub>3</sub> PO <sub>4</sub> . . . . .	98.02	1.99133
Ge . . . . .	72.5	1.86034	H <sub>2</sub> PtCl <sub>6</sub> .6H <sub>2</sub> O . .	517.61	2.71400
GeO <sub>2</sub> . . . . .	104.5	2.01912	H <sub>2</sub> S . . . . .	34.076	1.53245
			H <sub>2</sub> SO <sub>3</sub> . . . . .	82.076	1.91422
H . . . . .	1.008	0.00346	H <sub>2</sub> SO <sub>4</sub> . . . . .	98.076	1.99156
H <sub>2</sub> . . . . .	2.016	0.30449	$\frac{1}{2}$ H <sub>2</sub> SO <sub>4</sub> . . . . .	49.038	1.69053
H <sub>3</sub> . . . . .	3.024	0.48058	H <sub>2</sub> SeO <sub>3</sub> . . . . .	129.22	2.11131
H <sub>4</sub> . . . . .	4.032	0.60552	H <sub>2</sub> SeO <sub>4</sub> . . . . .	145.22	2.16202
H <sub>5</sub> . . . . .	5.040	0.70243	H <sub>2</sub> SiF <sub>6</sub> . . . . .	144.42	2.15962
H <sub>6</sub> . . . . .	6.048	0.78161	H <sub>2</sub> SiO <sub>3</sub> . . . . .	78.42	1.89441
H <sub>3</sub> AsO <sub>3</sub> . . . . .	126.02	2.10046	H <sub>2</sub> TeO <sub>4</sub> . . . . .	193.62	2.28694
H <sub>3</sub> AsO <sub>4</sub> . . . . .	142.02	2.15235	H <sub>2</sub> TeO <sub>4</sub> .2H <sub>2</sub> O . .	299.65	2.36107
HAuCl <sub>4</sub> .4H <sub>2</sub> O . .	412.07	2.61497			
H <sub>3</sub> BO <sub>3</sub> . . . . .	62.024	1.79256	Hg . . . . .	200	2.30103
(H <sub>3</sub> BO <sub>3</sub> ) <sub>2</sub> . . . . .	124.05	2.09359	HgCl . . . . .	235.45	2.37190
(H <sub>3</sub> BO <sub>3</sub> ) <sub>3</sub> . . . . .	186.07	2.26968	HgCl <sub>2</sub> . . . . .	270.90	2.43281
(H <sub>3</sub> BO <sub>3</sub> ) <sub>4</sub> . . . . .	248.10	2.39462	Hg(CN) <sub>2</sub> . . . . .	252.08	2.40154
HBr . . . . .	80.968	1.90831	HgI <sub>2</sub> . . . . .	453.94	2.65700
$\frac{1}{2}$ H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> . . . . .	45.008	1.65329	HgNO <sub>3</sub> . . . . .	262.04	2.41837
H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> . . . . .	90.016	1.95432	Hg(NO <sub>3</sub> ) <sub>2</sub> . . . . .	324.08	2.51065
$\frac{1}{2}$ H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O .	63.025	1.79952	Hg(NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O .	342.10	2.53415
H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O . .	126.05	2.10054	$\frac{1}{2}$ Hg <sub>2</sub> O . . . . .	208	2.31806
H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> . . . . .	60.032	1.77838	Hg <sub>2</sub> O . . . . .	416	2.61909
H.C <sub>3</sub> H <sub>5</sub> O <sub>3</sub> . . . . .	90.05	1.95447	HgO . . . . .	216.0	2.33445
H <sub>2</sub> .C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> . . . . .	150.05	2.17623	HgS . . . . .	232.06	2.36560
H <sub>3</sub> .C <sub>6</sub> H <sub>5</sub> O <sub>7</sub> . . . .	192.06	2.28345	HgSO <sub>4</sub> . . . . .	296.06	2.47138
HCl . . . . .	36.458	1.56180			
HClO <sub>3</sub> . . . . .	84.458	1.92664	I . . . . .	126.97	2.10370
HCN . . . . .	27.048	1.43214	I <sub>2</sub> . . . . .	253.94	2.40473
HCO <sub>2</sub> . . . . .	45.008	1.65329	I <sub>3</sub> . . . . .	380.91	2.58082
HF . . . . .	20.008	1.30121	I <sub>4</sub> . . . . .	507.88	2.70576
HI . . . . .	127.98	2.10713	IO <sub>3</sub> . . . . .	174.97	2.24297
(HI) <sub>2</sub> . . . . .	255.96	2.40817	(IO <sub>3</sub> ) <sub>2</sub> . . . . .	349.94	2.54399
HKCO <sub>3</sub> . . . . .	100.16	2.00069	$\frac{1}{2}$ I <sub>2</sub> O <sub>5</sub> . . . . .	166.97	2.22264

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
$\text{I}_2\text{O}_5$ .....	333.94	2.52367	$\text{KHC}_4\text{H}_4\text{O}_6$ ....	188.19	2.27450
$\text{IO}_4$ .....	190.97	2.28096	$\text{KHCO}_3$ .....	100.16	2.00069
$(\text{IO}_3)_2$ .....	381.94	2.58199	$(\text{KHCO}_3)_2$ ....	200.32	2.30171
$\frac{1}{2}\text{I}_2\text{O}_7$ .....	182.97	2.26237	$\text{KH}_2(\text{C}_2\text{O}_4)_2$		
$\text{I}_2\text{O}_7$ .....	365.94	2.56341	$2\text{H}_2\text{O}$ .....	254.21	2.40519
			$\text{KH}(\text{IO}_3)_2$ ....	390.10	2.59118
$\text{In}$ .....	115	2.06070	$\text{KHSO}_4$ .....	136.22	2.13423
$\text{In}_2$ .....	230	2.36173	$(\text{KHSO}_4)_2$ ....	272.44	2.43527
$\text{In}_2\text{O}_3$ .....	278	2.44404	$\text{KI}$ .....	166.12	2.22042
$\text{In}_2\text{S}_3$ .....	326.18	2.51345	$\frac{1}{2}\text{KIO}_3$ .....	35.69	1.55255
			$\text{KIO}_3$ .....	214.12	2.33066
$\text{K}$ .....	39.15	1.59273	$\frac{1}{2}\text{KMnO}_4$ .....	31.63	1.50010
$\text{K}_2$ .....	78.30	1.89376	$\text{KMnO}_4$ .....	158.15	2.19907
$\text{KAl}(\text{SO}_4)_2$			$\text{K}_2\text{MnO}_4$ .....	197.3	2.29513
$12\text{H}_2\text{O}$ .....	474.56	2.67629	$\text{KNO}_2$ .....	85.19	1.93039
$\text{K}_3\text{AsO}_4$ .....	256.45	2.40901	$(\text{KNO}_2)_2$ ....	170.38	2.23142
$\text{KAu}(\text{CN})_4\cdot\text{H}_2\text{O}$	358.53	2.55452	$\text{KNO}_3$ .....	101.19	2.00514
$\text{KBF}_4$ .....	126.15	2.10089	$\text{KNaC}_4\text{H}_4\text{O}_6$ ....	210.23	2.32269
$(\text{KBF}_4)_4$ .....	504.60	2.70295	$\frac{1}{2}\text{K}_2\text{O}$ .....	47.15	1.67348
$\text{KBr}$ .....	119.11	2.07595	$\text{K}_2\text{O}$ .....	94.3	1.97451
$\text{KBrO}_3$ .....	167.11	2.22301	$\text{KOH}$ .....	56.16	1.74943
$\text{K}_2\text{C}_4\text{H}_4\text{O}_6$ ....	226.33	2.35474	$\text{K}_2\text{PdCl}_4$ .....	397.5	2.59934
$\text{KCl}$ .....	74.60	1.87274	$\text{K}_2\text{PtCl}_4$ .....	485.8	2.68646
$(\text{KCl})_2$ .....	149.20	2.17377	$\text{K}_2\text{S}$ .....	110.36	2.04281
$\text{KClO}_3$ .....	122.60	2.08849	$\text{K}_2\text{SO}_4$ .....	174.36	2.24145
$\text{KClO}_4$ .....	138.60	2.14176	$\text{KSbOC}_4\text{H}_4\text{O}_6$		
$\text{KCN}$ .....	65.19	1.81418	$\frac{1}{2}\text{H}_2\text{O}$ .....	332.39	2.52165
$\text{KCNS}$ .....	97.25	1.98789	$\text{K}_2\text{SiF}_6$ .....	220.70	2.34380
$\text{K}_2\text{CO}_3$ .....	138.30	2.14082	$\text{K}_2\text{SiO}_3$ .....	154.7	2.18949
$\text{K}_2\text{CrO}_4$ .....	194.4	2.28870			
$\frac{1}{2}\text{K}_2\text{Cr}_2\text{O}_7$ ....	49.083	1.69093	$\text{La}$ .....	138.9	2.14270
$\frac{1}{2}\text{K}_2\text{Cr}_2\text{O}_7$ ....	147.25	2.16806	$\text{La}_2\text{O}_3$ .....	325.8	2.51295
$\text{K}_2\text{Cr}_2\text{O}_7$ .....	294.5	2.46909			
$\text{KCr}(\text{SO}_4)_2$			$\text{Li}$ .....	7.03	0.84696
$12\text{H}_2\text{O}$ .....	499.56	2.69859	$\text{Li}_2$ .....	14.06	1.14799
$\text{KF}\cdot 2\text{H}_2\text{O}$ ....	94.182	1.97397	$\text{LiCl}$ .....	42.48	1.62818
$\text{K}_3\text{Fe}(\text{CN})_6$ ....	329.59	2.51798	$\text{Li}_2\text{CO}_3$ .....	74.06	1.86958
$\text{K}_4\text{Fe}(\text{CN})_6$ ....	368.74	2.56672	$\text{LiHCO}_3$ .....	68.04	1.83275
$\text{K}_4\text{Fe}(\text{CN})_6$			$\frac{1}{2}\text{Li}_2\text{O}$ .....	15.03	1.17696
$3\text{H}_2\text{O}$ .....	422.79	2.62612	$\text{Li}_2\text{O}$ .....	30.06	1.47799
$\text{K}_2\text{GeF}_6$ .....	264.8	2.42292	$\text{Li}_3\text{PO}_4$ .....	116.09	2.06479
$\text{K}_2\text{HAsO}_4$ .....	218.31	2.33907	$\text{Li}_2\text{SO}_4$ .....	110.12	2.04187

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
Mg.....	24.36	1.38668	MoO <sub>3</sub> .....	144	2.15836
Mg <sub>2</sub> .....	48.72	1.68771	MoS <sub>3</sub> .....	192.18	2.28371
$\frac{1}{2}$ Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....	155.36	2.19134	N.....	14.04	1.14737
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....	310.72	2.49237	N <sub>2</sub> .....	28.08	1.44080
MgBr <sub>2</sub> .....	184.28	2.26548	NH <sub>2</sub> .....	16.06	1.20575
MgBr <sub>2</sub> .6H <sub>2</sub> O...	292.38	2.46595	NH <sub>3</sub> .....	17.064	1.23208
MgCl <sub>2</sub> .....	95.26	1.97891	(NH <sub>3</sub> ) <sub>2</sub> .....	34.128	1.53311
MgCl <sub>2</sub> .6H <sub>2</sub> O...	203.36	2.30827	NH <sub>4</sub> .....	18.072	1.25701
MgCl <sub>2</sub> .KCl			(NH <sub>4</sub> ) <sub>2</sub> .....	36.144	1.55804
.6H <sub>2</sub> O.....	277.96	2.44398	NH <sub>4</sub> Al(SO <sub>4</sub> ) <sub>2</sub> .		
MgCO <sub>3</sub> .....	84.36	1.92614	12H <sub>2</sub> O.....	453.49	2.65657
Mg(HCO <sub>3</sub> ) <sub>2</sub> .....	146.38	2.16547	NH <sub>4</sub> Br.....	98.03	1.99137
MgI <sub>2</sub> .....	278.30	2.44451	NH <sub>4</sub> Cl.....	53.52	1.72852
MgNH <sub>4</sub> AsO <sub>4</sub> .			(NH <sub>4</sub> Cl) <sub>2</sub> .....	107.04	2.02957
$\frac{1}{2}$ H <sub>2</sub> O.....	190.44	2.27976	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .....	96.14	1.98922
[MgNH <sub>4</sub> AsO <sub>4</sub> .			(NH <sub>4</sub> ) <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .		
$\frac{1}{2}$ H <sub>2</sub> O] <sub>2</sub> .....	380.88	2.58079	2H <sub>2</sub> O.....	160.18	2.20461
MgNH <sub>4</sub> PO <sub>4</sub> .			NH <sub>4</sub> HCO <sub>3</sub> .....	79.08	1.89807
6H <sub>2</sub> O.....	245.53	2.39010	NH <sub>4</sub> Fe(SO <sub>4</sub> ) <sub>2</sub> .		
MgO.....	40.36	1.60595	12H <sub>2</sub> O.....	482.28	2.68330
$\frac{1}{2}$ Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	111.36	2.04673	(NH <sub>4</sub> ) <sub>2</sub> Fe(SO <sub>4</sub> ) <sub>2</sub> .		
Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	222.72	2.34776	6H <sub>2</sub> O.....	392.26	2.59358
MgSO <sub>4</sub> .....	120.42	2.08070	NH <sub>4</sub> I.....	145.04	2.16149
MgSO <sub>4</sub> .7H <sub>2</sub> O...	246.53	2.39187	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> ...	196.14	2.29258
MgSiO <sub>3</sub> .....	100.76	2.00329	NH <sub>4</sub> NO <sub>3</sub> .....	80.11	1.90369
			(NH <sub>4</sub> NO <sub>3</sub> ) <sub>2</sub> .....	160.22	2.20472
Mn.....	55	1.74036	NH <sub>4</sub> NaHPO <sub>4</sub> .		
Mn <sub>2</sub> .....	110	2.04139	4H <sub>2</sub> O.....	209.19	2.32055
MnCO <sub>3</sub> .....	115	2.06070	(NH <sub>4</sub> ) <sub>2</sub> O.....	52.14	1.71717
MnCl <sub>2</sub> .4H <sub>2</sub> O...	197.96	2.29658	NH <sub>4</sub> OH.....	35.08	1.54506
Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	177.02	2.24801	$\frac{1}{12}$ (NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub> .		
MnO.....	71.0	1.85126	12MoO <sub>3</sub> .....	156.44	2.19434
MnO <sub>2</sub> .....	87.0	1.93952	(NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub> .		
Mn <sub>2</sub> O <sub>3</sub> .....	158.0	2.19866	12MoO <sub>3</sub> .....	1877.2	3.27351
Mn <sub>3</sub> O <sub>4</sub> .....	229.0	2.35984	$\frac{1}{2}$ (NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> ...	221.82	2.34600
$\frac{1}{3}$ Mn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	142.0	2.15229	(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> ...	443.64	2.64703
Mn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	284.0	2.45332	NH <sub>4</sub> CNS.....	76.17	1.88178
MnS.....	87.06	1.93982	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	132.20	2.12123
MnSO <sub>4</sub> .....	151.06	2.17915	N <sub>2</sub> O.....	44.08	1.64424
MnSO <sub>4</sub> .4H <sub>2</sub> O...	223.12	2.34854	NO.....	30.04	1.47770
MnSO <sub>4</sub> .7H <sub>2</sub> O...	277.17	2.44275	NO <sub>2</sub> .....	46.04	1.66314
			$\frac{1}{2}$ N <sub>2</sub> O <sub>3</sub> .....	38.04	1.58070
Mo.....	96	1.98227			



Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
$N_2O_3$ .....	76.08	1.88127	$Na_4P_2O_7$ .....	266.20	2.42521
$NO_3$ .....	62.04	1.79267	$\frac{1}{2}Na_4P_2O_7 \cdot 10H_2O$	223.18	2.34865
$\frac{1}{2}N_2O_5$ .....	54.04	1.73272	$Na_3RhCl_6$ .....	384.85	2.58530
$N_2O_5$ .....	108.08	2.03375	$Na_2S$ .....	78.16	1.89298
$Na$ .....	23.05	1.36267	$Na_2SO_3$ .....	126.16	2.10092
$Na_2$ .....	46.10	1.66370	$Na_2SO_3 \cdot 7H_2O$ ..	252.27	2.40187
$Na_3AlF_6$ .....	210.25	2.32274	$Na_2S_2O_3 \cdot 5H_2O$ ..	248.30	2.39498
$Na_2B_4O_7$ .....	202.10	2.30557	$Na_2SO_4$ .....	142.16	2.15278
$Na_2B_4O_7 \cdot 10H_2O$	382.26	2.58236	$Na_2SO_4 \cdot 10H_2O$ ..	322.32	2.50829
$NaBr$ .....	103.01	2.01288	$Ni$ .....	58.7	1.76864
$NaC_2H_3O_2$ .....	82.07	1.91418	$NiCl_2 \cdot 6H_2O$ ....	237.70	2.37603
$NaC_2H_3O_2 \cdot 3H_2O$	136.12	2.13392	$Ni(NO_3)_2 \cdot 6H_2O$	290.88	2.46371
$NaCl$ .....	58.50	1.76716	$NiO$ .....	74.7	1.87332
$(NaCl)_2$ .....	117.00	2.06819	$NiSO_4$ .....	154.76	2.18966
$NaClO_4$ .....	122.50	2.08814	$NiSO_4 \cdot 6H_2O$ ....	262.86	2.41973
$NaCN$ .....	49.09	1.69099	$NiSO_4 \cdot 7H_2O$ ....	280.87	2.44851
$\frac{1}{2}Na_2CO_3$ .....	53.05	1.72469	$O$ .....	16.00	1.20412
$Na_2CO_3$ .....	106.1	2.02572	$O_2$ .....	32.00	1.50515
$Na_2CO_3 \cdot 10H_2O$	286.26	2.45676	$O_3$ .....	48.00	1.68124
$NaF$ .....	42.05	1.62377	$O_4$ .....	64.00	1.80618
$(NaF)_2$ .....	84.10	1.92480	$O_5$ .....	80.00	1.90309
$Na_4Fe(CN)_6$ ....	304.34	2.48336	$O_6$ .....	96.00	1.98227
$Na_2HAsO_3$ .....	170.11	2.23072	$OH$ .....	17.008	1.23065
$Na_2HAsO_4$ .....	186.11	2.26977	$Os$ .....	191	2.28103
$NaHCO_3$ .....	84.06	1.92459	$OsO_4$ .....	255	2.40654
$Na_2HPO_4$ .....	142.11	2.15261	$P$ .....	31.	1.49136
$Na_2HPO_4 \cdot 12H_2O$ .....	358.3	2.55425	$P_2$ .....	62.	1.79239
$NaHSO_3$ .....	104.12	2.01753	$PCl_3$ .....	137.35	2.13783
$NaHSO_4$ .....	120.12	2.07961	$PCl_5$ .....	208.25	2.31859
$NaHSO_4 \cdot H_2O$ ..	138.13	2.14030	$\frac{1}{2}P_2O_5$ .....	71.0	1.85126
$NaI$ .....	150.02	2.17615	$P_2O_5$ .....	142.0	2.15229
$NaNH_4HPO_4 \cdot 4H_2O$ .....	209.19	2.32055	$PO_4$ .....	95.0	1.97772
$NaNO_2$ .....	69.09	1.83942	$2PO_4$ .....	190.0	2.27875
$NaNO_3$ .....	85.09	1.92988	$P_2O_3$ .....	110.0	2.04139
$\frac{1}{2}Na_2O$ .....	31.05	1.49206	$Pb$ .....	206.9	2.31576
$Na_2O$ .....	62.10	1.79309	$Pb(C_2H_3O_2)_2 \cdot 3H_2O$ .....	379.00	2.57864
$Na_2O_2$ .....	78.10	1.89265	$PbCl_2$ .....	277.8	2.44373
$NaOH$ .....	40.06	1.60271			
$NaPO_3$ .....	102.05	2.00882			
$Na_3PO_4$ .....	164.15	2.21524			

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
PbCO <sub>3</sub> .....	266.9	2.42635	SCN.....	58.10	1.76418
$\frac{1}{3}(\text{PbCO}_3)_2$ .			SO <sub>2</sub> .....	64.06	1.80659
Pb(OH) <sub>2</sub> .....	258.24	2.45843	SO <sub>3</sub> .....	80.06	1.90342
(PbCO <sub>3</sub> ) <sub>2</sub> .			SO <sub>4</sub> .....	96.06	1.98254
Pb(OH) <sub>2</sub> .....	774.72	2.88914			
PbCrO <sub>4</sub> .....	323.0	2.50920	Sb.....	120.2	2.07990
PbI <sub>2</sub> .....	460.84	2.66355	Sb <sub>2</sub> .....	240.4	2.38093
PbMoO <sub>4</sub> .....	366.9	2.56455	SbCl <sub>3</sub> .....	226.55	2.35517
Pb(NO <sub>3</sub> ) <sub>2</sub> .....	330.98	2.51980	SbCl <sub>5</sub> .....	297.45	2.47342
PbO.....	222.9	2.34811	$\frac{1}{2}\text{Sb}_2\text{O}_3$ .....	144.2	2.15897
PbO <sub>2</sub> .....	238.9	2.37822	Sb <sub>2</sub> O <sub>3</sub> .....	288.4	2.46000
Pb <sub>3</sub> O <sub>4</sub> .....	684.7	2.83550	Sb <sub>2</sub> O <sub>4</sub> .....	304.4	2.48344
PbS.....	238.96	2.37833	$\frac{1}{2}\text{Sb}_2\text{O}_5$ .....	160.2	2.20466
PbSO <sub>4</sub> .....	302.96	2.48138	Sb <sub>2</sub> O <sub>5</sub> .....	320.4	2.50569
			SbOCl.....	171.65	2.23465
Pd.....	106.5	2.02735	SbOKC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .		
PdCl <sub>2</sub> .2H <sub>2</sub> O....	213.43	2.32926	$\frac{1}{2}\text{H}_2\text{O}$ .....	332.39	2.52165
PdI <sub>2</sub> .....	360.44	2.55683	Sb <sub>2</sub> S <sub>3</sub> .....	336.58	2.52709
Pd(NO <sub>3</sub> ) <sub>2</sub> .....	230.58	2.36282	Sb <sub>2</sub> S <sub>5</sub> .....	400.70	2.60282
Pt.....	194.8	2.28959	Se.....	79.2	1.89873
PtCl <sub>4</sub> .....	336.60	2.52711	SeO <sub>2</sub> .....	111.2	2.04610
PtCl <sub>4</sub> .5H <sub>2</sub> O....	426.68	2.63010	SeO <sub>3</sub> .....	127.2	2.10449
PtCl <sub>6</sub> .....	407.50	2.61013			
			Si.....	28.4	1.45332
Rb.....	85.5	1.93197	Si <sub>2</sub> .....	56.8	1.75435
Rb <sub>2</sub> .....	171.0	2.23300	SiF <sub>4</sub> .....	104.4	2.01870
RbAl(SO <sub>4</sub> ) <sub>2</sub> .			SiF <sub>6</sub> .....	142.4	2.15351
12H <sub>2</sub> O.....	520.91	2.71676	SiO <sub>2</sub> .....	60.4	1.78104
RbCl.....	120.95	2.08261	SiO <sub>3</sub> .....	76.4	1.88309
(RbCl) <sub>2</sub> .....	241.90	2.38364	SiO <sub>4</sub> .....	92.4	1.96567
Rb <sub>2</sub> CO <sub>3</sub> .....	231.	2.36361	Si <sub>2</sub> O <sub>7</sub> .....	168.8	2.22737
RbHCO <sub>3</sub> .....	146.51	2.16586	Si(OH) <sub>4</sub> .....	96.43	1.98422
(RbHCO <sub>3</sub> ) <sub>2</sub> .....	293.02	2.46690			
Rb <sub>2</sub> O.....	187.	2.27184	Sn.....	119.0	2.07555
Rb <sub>2</sub> PtCl <sub>6</sub> .....	578.50	2.76230	SnCl <sub>2</sub> .....	189.90	2.27852
Rb <sub>2</sub> SO <sub>4</sub> .....	267.06	2.42661	SnCl <sub>2</sub> .2H <sub>2</sub> O....	225.93	2.35398
			SnCl <sub>4</sub> .....	260.8	2.41631
Rh.....	103.0	2.01284	SnCl <sub>4</sub> .(NH <sub>4</sub> Cl) <sub>2</sub> .	367.84	2.56566
RhCl <sub>3</sub> .....	209.35	2.32088	SnO.....	135.0	2.13033
			SnO <sub>2</sub> .....	151.0	2.17898
S.....	32.06	1.50596	SnS.....	151.06	2.17915
S <sub>2</sub> .....	64.12	1.80699	SnS <sub>2</sub> .....	183.12	2.26274

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
Sr.....	87.6	1.94250	Tl <sub>2</sub> O.....	424.20	2.62757
SrCl <sub>2</sub> .....	158.5	2.20003	Tl <sub>2</sub> PtCl <sub>6</sub> .....	815.7	2.91153
SrCl <sub>2</sub> .6H <sub>2</sub> O....	266.6	2.42586	$\frac{1}{2}$ Tl <sub>2</sub> SO <sub>4</sub> .....	252.13	2.40162
SrCO <sub>3</sub> .....	147.6	2.16909	Tl <sub>2</sub> SO <sub>4</sub> .....	504.26	2.70265
$\frac{1}{2}$ Sr(HCO <sub>3</sub> ) <sub>2</sub> ....	104.81	2.02039	U.....	238.5	2.37749
Sr(HCO <sub>3</sub> ) <sub>2</sub> ....	209.62	2.32142	U <sub>3</sub> .....	477.0	2.67852
Sr(NO <sub>3</sub> ) <sub>2</sub> .....	211.68	2.32568	UO <sub>2</sub> .....	270.5	2.43217
SrO.....	103.6	2.01536	(UO <sub>2</sub> ) <sub>2</sub> .....	541.0	2.73320
Sr(OH) <sub>2</sub> .8H <sub>2</sub> O..	265.74	2.42445	$\frac{1}{2}$ U <sub>3</sub> O <sub>8</sub> .....	281.17	2.44897
SrSO <sub>4</sub> .....	183.66	2.26401	U <sub>3</sub> O <sub>8</sub> .....	843.5	2.92609
Ta.....	183	2.26245	UO <sub>2</sub> (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> . 2H <sub>2</sub> O.....	424.58	2.62796
TaCl <sub>5</sub> .....	360.25	2.55660	UO <sub>2</sub> (UO <sub>2</sub> ) <sub>2</sub> . 6H <sub>2</sub> O.....	502.68	2.70129
(TaCl <sub>5</sub> ) <sub>2</sub> .....	720.50	2.85763	$\frac{1}{2}$ U <sub>3</sub> P <sub>2</sub> O <sub>11</sub> .....	357.5	2.55328
Ta <sub>2</sub> O <sub>4</sub> .....	430	2.63347	U <sub>3</sub> P <sub>2</sub> O <sub>11</sub> .....	715.0	2.85431
Ta <sub>2</sub> O <sub>5</sub> .....	446	2.64933	V.....	51.2	1.70927
Te.....	127.6	2.10585	VO <sub>4</sub> .....	115.2	2.06145
TeO <sub>2</sub> .....	159.6	2.20303	(VO <sub>4</sub> ) <sub>2</sub> .....	230.4	2.36248
TeO <sub>3</sub> .....	175.6	2.24452	V <sub>2</sub> O <sub>5</sub> .....	182.4	2.26102
TeO <sub>3</sub> .3H <sub>2</sub> O....	229.65	2.36107	W.....	184	2.26482
Th.....	232.5	2.36642	WO <sub>2</sub> .....	216	2.33445
ThCl <sub>4</sub> .....	374.30	2.57322	WO <sub>3</sub> .....	232	2.36549
Th(NO <sub>3</sub> ) <sub>4</sub> .6H <sub>2</sub> O	588.76	2.76993	Yb.....	173	2.23805
ThO <sub>2</sub> .....	264.5	2.42243	Yb <sub>2</sub> O <sub>3</sub> .....	394	2.59550
Ti.....	48.1	1.68215	Yt.....	89	1.94939
TiO <sub>2</sub> .....	80.1	1.90363	Yt <sub>2</sub> O <sub>3</sub> .....	226	2.35411
Tl.....	204.1	2.30984	Zn.....	65.4	1.81558
Tl <sub>2</sub> .....	408.2	2.61087	ZnCl <sub>2</sub> .....	136.3	2.13450
TlCl.....	239.55	2.37940	ZnCO <sub>3</sub> .....	125.4	2.09830
(TlCl) <sub>2</sub> .....	479.10	2.68043	ZnO.....	81.4	1.91062
$\frac{1}{2}$ Tl <sub>2</sub> CO <sub>3</sub> .....	234.1	2.36940	Zn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	304.8	2.48401
Tl <sub>2</sub> CO <sub>3</sub> .....	468.2	2.67043	ZnS.....	97.46	1.98883
$\frac{1}{2}$ Tl <sub>2</sub> CrO <sub>4</sub> .....	262.15	2.41855	ZnSO <sub>4</sub> .....	161.46	2.20806
Tl <sub>2</sub> CrO <sub>4</sub> .....	524.30	2.71958	ZnSO <sub>4</sub> .7H <sub>2</sub> O...	287.57	2.45875
TlHSO <sub>4</sub> .....	301.17	2.47881	Zr.....	90.6	1.95713
TlI.....	331.07	2.51992	ZrO <sub>2</sub> .....	122.6	2.08849
(TlI) <sub>2</sub> .....	662.14	2.82095			
TlNO <sub>3</sub> .....	266.14	2.42506			
$\frac{1}{2}$ Tl <sub>2</sub> O.....	212.10	2.32654			

# CALCULATION OF VOLUMETRIC ANALYSES

## VIII. — BASICITY OF ACIDS WITH VARIOUS INDICATORS ACCORDING TO R. T. THOMPSON \*

The numbers indicate in each case the number of molecules of a univalent base, such as caustic soda, which will have combined with one molecule of the acid when the solution reacts neutral to the indicator given. Thompson divided indicators into three classes. Methyl orange is typical of the first class which also includes lacmoid, dimethyl amido-benzene, cochineal, iodeosine, and congo red. Phenolphthalein is typical of the second class which includes turmeric, curcuma, and flavescin. Litmus is typical of the third class, which includes rosolic acid, phenacetolin, fluorescein, gallein, and hematoxylin.

Acids.		Methyl Orange.	Phenolphthalein.		Litmus.	
Name.	Formula.	Cold.	Cold.	Boiling.	Cold.	Boiling.
Sulphuric. . . . .	H <sub>2</sub> SO <sub>4</sub>	2	2	2	2	2
Hydrochloric. . . . .	HCl	1	1	1	1	1
Nitric. . . . .	HNO <sub>3</sub>	1†	1	1	1	1
Thiosulphuric. . . . .	H <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	2	2	2	2	2
Carbonic. . . . .	H <sub>2</sub> CO <sub>3</sub>	0	1 dilute	0	.....	0
Sulphurous. . . . .	H <sub>2</sub> SO <sub>3</sub>	1	2	.....	.....	.....
Hydrosulphuric. . . . .	H <sub>2</sub> S	0	1 dilute	0	.....	0
Phosphoric. . . . .	H <sub>3</sub> PO <sub>4</sub>	1	2	.....	.....	.....
Arsenic. . . . .	H <sub>3</sub> AsO <sub>4</sub>	1	2	.....	.....	.....
Arsenous. . . . .	H <sub>3</sub> AsO <sub>3</sub>	0	.....	.....	0	0
Nitrous. . . . .	HNO <sub>2</sub>	†	1	.....	1	.....
Silicic. . . . .	H <sub>4</sub> SiO <sub>4</sub>	0	.....	.....	0	0
Boric. . . . .	H <sub>3</sub> BO <sub>3</sub>	0	.....	.....	.....	.....
Chromic. . . . .	H <sub>2</sub> CrO <sub>4</sub>	1	2	2	.....	.....
Oxalic. . . . .	H <sub>2</sub> C <sub>2</sub> O <sub>4</sub>	.....	2	2	2	2
Acetic. . . . .	HC <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	.....	1	.....	1 nearly	.....
Butyric. . . . .	HC <sub>4</sub> H <sub>7</sub> O <sub>2</sub>	.....	1	.....	1 nearly	.....
Succinic. . . . .	H <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>4</sub>	.....	2	.....	2 nearly	.....
Lactic. . . . .	HC <sub>3</sub> H <sub>5</sub> O <sub>3</sub>	.....	1	.....	1	.....
Tartaric. . . . .	H <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub>	.....	2	.....	2	.....
Citric. . . . .	H <sub>3</sub> C <sub>6</sub> H <sub>5</sub> O <sub>7</sub>	.....	3	.....	.....	.....

\* C. N., 47, pp. 123, 185; 49, pp. 32, 119. J. S. C. I., 6, p. 195.  
† Concentrated nitric acid sometimes contains oxides of nitrogen producing on dilution nitrous acid, which destroys methyl orange.

## IX. — VALUE OF NORMAL SOLUTIONS OF ACIDS AND BASES

In the following table the amount of each chemical compound which is equal to one c.c. of a normal solution is given. The indicator given in the last column or an indicator belonging to the same class, as given by Thompson, must be used. When no indicator is specified any one of the three classes of indicators may be used.

For fifth or tenth normal solutions or other strengths the number given in the table must be multiplied by  $\frac{1}{5}$  or  $\frac{1}{10}$  or the number expressing in terms of normal the strength of the solution used. If the amount of any chemical compound corresponding to 100 c.c. is weighed out and titrated with a normal solution the number of c.c. of solution used will be equal to the percentage of the constituent titrated. If a one tenth normal solution is used only one tenth of this amount need be weighed out.

Substance.	Formula.	Atomic or Molecular Weight.	Grams Neutralized by 1 c.c. Normal Solution.		Indi- cator. *
			Number.	Logarithm.	
Acetic acid.....	H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ....	58.032	.05803	2.76367	P
Ammonia.....	NH <sub>3</sub> .....	17.064	.01706	2.23208	M., L.
Ammonium.....	NH <sub>4</sub> .....	18.072	.01807	2.25701	M., L.
chloride.....	NH <sub>4</sub> Cl.....	53.522	.05352	2.72854	M., L.
hydroxide.....	NH <sub>4</sub> OH.....	35.08	.03508	2.54506	M., L.
nitrate.....	NH <sub>4</sub> NO <sub>3</sub> .....	80.112	.08011	2.90370	M., L.
sulphate.....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> ....	132.204	.06610	2.82021	M., L.
Barium.....	Ba.....	137.4	.06870	2.83696	.....
carbonate.....	BaCO <sub>3</sub> .....	197.4	.09870	2.99432	M.
chloride.....	BaCl <sub>2</sub> .2H <sub>2</sub> O..	244.332	.12217	1.08695	.....
hydroxide.....	Ba(OH) <sub>2</sub> ....	171.416	.08571	2.93302	.....
oxide.....	BaO.....	153.4	.07670	2.88480	.....
Boric acid.....	H <sub>3</sub> BO <sub>3</sub> .....	62.024	.06202	2.79256	P.
Calcium.....	Ca.....	40.1	.02005	2.30211	.....
carbonate.....	CaCO <sub>3</sub> .....	100.1	.05005	2.69940	M.
chloride.....	CaCl <sub>2</sub> .....	111.0	.05550	2.74429	.....
chloride.....	CaCl <sub>2</sub> .6H <sub>2</sub> O..	219.096	.10955	1.03960	.....
hydroxide.....	Ca(OH) <sub>2</sub> ....	74.116	.03706	2.56889	.....
oxide.....	CaO.....	56.1	.02805	2.44793	.....
Carbon dioxide.....	CO <sub>2</sub> .....	44.00	.04400	2.64345	P.
Citric acid.....	H <sub>3</sub> C <sub>6</sub> H <sub>5</sub> O <sub>7</sub> ....	192.064	.06402	2.80633	.....
Hydrobromic acid ...	HBr.....	80.968	.08097	2.90831	.....
Hydrochloric acid ...	HCl.....	36.458	.03646	2.56180	.....

\* M. = Methyl orange; L. = Litmus; P. = Phenolphthalein.

Substance.	Formula.	Molecular or Atomic Weight.	Grams Neutralized by 1 c.c. Normal Solution.		Indica- cator.
			Number.	Logarithm.	
Hydroiodic acid . . . . .	HI . . . . .	127.98	.01280	2.10713	.....
Lactic acid . . . . .	H.C <sub>3</sub> H <sub>5</sub> O <sub>3</sub> . . . . .	90.048	.09005	2.95447	P.
Lead . . . . .	Pb . . . . .	206.9	.10345	1.01473	.....
carbonate . . . . .	PbCO <sub>3</sub> . . . . .	266.9	.13345	1.12532	M.
oxide . . . . .	PbO . . . . .	222.9	.11145	1.04708	.....
Magnesium . . . . .	Mg . . . . .	24.36	.01218	2.08565	M.
carbonate . . . . .	MgCO <sub>3</sub> . . . . .	84.36	.04218	2.62511	M.
chloride . . . . .	MgCl <sub>2</sub> . . . . .	95.26	.04763	2.67788	M.
oxide . . . . .	MgO . . . . .	40.36	.02018	2.30492	M.
Nitric acid . . . . .	HNO <sub>3</sub> . . . . .	63.048	.06305	2.79968	.....
oxide . . . . .	N <sub>2</sub> O <sub>5</sub> . . . . .	108.08	.05404	2.73272	.....
Nitrous acid . . . . .	HNO <sub>2</sub> . . . . .	47.048	.04705	2.67254	P.
Nitrogen . . . . .	N . . . . .	14.04	.01404	2.14737	.....
Oxalic acid . . . . .	H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> . . . . .	90.016	.04501	2.65329	.....
"   "   " . . . . .	H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O . . . . .	126.048	.06302	2.79951	.....
Phosphoric acid . . . . .	H <sub>3</sub> PO <sub>4</sub> . . . . .	98.024	.09802	2.99133	M.
"   "   " . . . . .	H <sub>3</sub> PO <sub>4</sub> . . . . .	98.024	.04901	2.69030	P.
Potassium . . . . .	K . . . . .	39.15	.03915	2.59273	.....
bicarbonate . . . . .	KHCO <sub>3</sub> . . . . .	100.158	.10016	1.00067	M.
bitartrate . . . . .	KHC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> . . . . .	188.19	.18819	1.27450	P.
carbonate . . . . .	K <sub>2</sub> CO <sub>3</sub> . . . . .	138.30	.06915	2.83979	M.
dichromate . . . . .	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> . . . . .	294.5	.14725	1.16806	P.
hydroxide . . . . .	KOH . . . . .	56.158	.05616	2.74941	.....
oxide . . . . .	K <sub>2</sub> O . . . . .	94.3	.04715	2.67348	.....
tartrate . . . . .	K <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> . . . . .	226.332	.11317	1.04371	.....
tetroxalate . . . . .	KH <sub>3</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>2</sub> . . . . .	254.21	.08474	2.93807	.....
Sodium . . . . .	Na . . . . . [2H <sub>2</sub> O	23.05	.02305	2.36267	.....
bicarbonate . . . . .	NaHCO <sub>3</sub> . . . . .	84.058	.08406	2.92458	M.
carbonate . . . . .	Na <sub>2</sub> CO <sub>3</sub> . . . . .	106.1	.05305	2.72469	M.
diphosphate . . . . .	Na <sub>2</sub> HPO <sub>4</sub> . . . . .	142.108	.14211	1.15261	P.
"   "   " . . . . .	Na <sub>2</sub> HPO <sub>4</sub> . . . . .	358.3	.35830	1.55425	P.
hydroxide . . . . .	NaOH . [12H <sub>2</sub> O	40.058	.04006	2.60269	.....
oxide . . . . .	Na <sub>2</sub> O . . . . .	62.1	.03105	2.49206	.....
tetraborate . . . . .	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> . . . . .	202.10	.10105	1.00454	P.
"   "   " . . . . .	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O . . . . .	382.26	.19113	1.28133	P.
triposphate . . . . .	Na <sub>3</sub> PO <sub>4</sub> . . . . .	164.15	.16415	1.21524	M.
"   "   " . . . . .	Na <sub>3</sub> PO <sub>4</sub> . . . . .	164.15	.08208	2.91421	P.
Sulphur trioxide . . . . .	SO <sub>3</sub> . . . . .	80.06	.04003	2.60239	.....
Sulphuric acid . . . . .	H <sub>2</sub> SO <sub>4</sub> . . . . .	98.076	.04904	2.69053	.....
Tartaric acid . . . . .	H <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> . . . . .	150.048	.07502	2.87520	P.

# X. — VALUE OF NORMAL SOLUTIONS OF OXIDIZING AND REDUCING AGENTS

Substance Titrated.		Atomic or Molecular Weight.	1 c.c. of Normal Solution is Equal to Grams.	
Name.	Formula.		Number.	Logarithm.
Ammonium oxalate.....	$(\text{NH}_4)_2\text{C}_2\text{O}_4$ .....	124.144	.06272	2.79741
Antimony.....	Sb.....	120.2	.06010	2.77887
Arsenic.....	As.....	75.0	.0375	2.57403
Arsenous acid.....	$\text{H}_3\text{AsO}_3$ .....	126.024	.06301	2.79942
oxide.....	$\text{As}_2\text{O}_3$ .....	198.0	.0495	2.69461
sulphide.....	$\text{As}_2\text{S}_3$ .....	246.18	.06154	2.78920
Barium peroxide.....	$\text{BaO}_2$ .....	169.4	.0847	2.92788
peroxide.....	$\text{BaO}_2 \cdot 8\text{H}_2\text{O}$ .....	313.53	.15676	1.19524
thiosulphate.....	$\text{BaS}_2\text{O}_3 \cdot \text{H}_2\text{O}$ .....	267.54	.26754	1.42739
Bleaching powder.....	$\text{CaOCl}_2$ .....	127.0	.0635	2.80277
Bromine.....	Br.....	79.96	.07996	2.90287
Calcium.....	Ca.....	40.1	.02005	2.30211
carbonate.....	$\text{CaCO}_3$ .....	100.1	.05005	2.69940
oxide.....	CaO.....	56.1	.02805	2.44793
Chlorine.....	Cl.....	35.45	.03545	2.54962
Chromic anhydride.....	$\text{CrO}_3$ .....	100.1	.03337	2.52336
oxide.....	$\text{Cr}_2\text{O}_3$ .....	152.2	.02537	2.40432
Copper.....	Cu.....	63.6	.0636	2.80346
oxide.....	CuO.....	79.6	.0796	2.90091
sulphate.....	$\text{CuSO}_4$ .....	159.66	.15966	1.20319
".....	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .....	249.74	.24974	1.39749
Ferric oxide.....	$\text{Fe}_2\text{O}_3$ .....	159.8	.0799	2.90255
Ferrous oxide.....	FeO.....	71.9	.0719	2.85673
sulphate.....	$\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ .....	278.072	.27807	1.44415
ammonium sulphate...	$\text{FeSO}_4(\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$ .....	392.26	.39226	1.59358
Hydrogen peroxide.....	$\text{H}_2\text{O}_2$ .....	34.016	.01701	2.23065
Hydrogen sulphide.....	$\text{H}_2\text{S}$ .....	34.076	.01704	2.23142
Iodine.....	I.....	126.97	.12697	1.10370
Iron.....	Fe.....	55.9	.0559	2.74741
Lead peroxide.....	$\text{PbO}_2$ .....	238.9	.11945	1.07719
Manganese peroxide.....	$\text{MnO}_2$ .....	87.0	.0435	2.63849
Nitrous acid.....	$\text{HNO}_2$ .....	47.048	.04705	2.67254
Oxalic acid.....	$\text{H}_2\text{C}_2\text{O}_4$ .....	90.016	.04501	2.65329
".....	$\text{H}_2\text{C}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$ .....	126.048	.06302	2.79951

Substance Titrated.		Atomic or Molecular Weight.	1 c.c. of Normal Solution is Equal to Grams.	
Name.	Formula.		Number.	Logarithm.
Potassium acid iodate....	$\text{KH}(\text{IO}_3)_2$ .....	390.098	.03250	2.51199
chlorate.....	$\text{KClO}_3$ .....	122.60	.02043	2.31033
chromate.....	$\text{K}_2\text{CrO}_4$ .....	194.4	.0648	2.81158
dichromate.....	$\text{K}_2\text{Cr}_2\text{O}_7$ .....	294.5	.04908	2.69093
ferrocyanide.....	$\text{K}_4\text{Fe}(\text{CN})_6$ .....	368.74	.36874	1.56672
“       cryst.....	$\text{K}_4\text{Fe}(\text{CN})_6 \cdot 3\text{H}_2\text{O}$	422.79	.4228	1.62613
iodate.....	$\text{KIO}_3$ .....	214.12	.03569	2.55251
nitrite.....	$\text{KNO}_2$ .....	85.19	.08519	2.93039
perchlorate.....	$\text{KClO}_4$ .....	138.60	.01733	2.23868
permanganate.....	$\text{KMnO}_4$ .....	158.15	.03163	2.50010
tetroxalate.....	$\text{KH}_3(\text{C}_2\text{O}_4)_2 \cdot 2\text{H}_2\text{O}$	254.21	.06355	2.80314
Sodium chlorate.....	$\text{NaClO}_3$ .....	122.50	.02042	2.30999
ferrocyanide.....	$\text{Na}_4\text{Fe}(\text{CN})_6$ .....	304.34	.30434	1.48336
thiosulphate.....	$\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ ....	248.30	.24830	1.39498
Stannous chloride.....	$\text{SnCl}_2$ .....	189.90	.09495	2.97749
“       .....	$\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .....	225.932	.11297	1.05294
Tin.....	$\text{Sn}$ .....	119.0	.0595	2.77452



# XI. — VALUE OF NORMAL SOLUTIONS OF PRECIPITATION REAGENTS

Substance Titrated.		Atomic or Molecular Weight.	1 c.c. of Normal Solution is Equal to Grams.	
Name.	Formula.		Number.	Logarithm.
<b>Ammonium</b>				
sulphocyanate . . . . .	NH <sub>4</sub> CNS . . . . .	76.17	.07617	2.88178
<b>Arsenic acid</b> . . . . .	H <sub>3</sub> AsO <sub>4</sub> . . . . .	142.02	.04734	2.67523
oxide . . . . .	As <sub>2</sub> O <sub>5</sub> . . . . .	230.0	.03833	2.58354
<b>Arsenous acid</b> . . . . .	H <sub>3</sub> AsO <sub>3</sub> . . . . .	126.02	.04201	2.62335
oxide . . . . .	As <sub>2</sub> O <sub>3</sub> . . . . .	198.0	.03300	2.51851
<b>Bromine</b> . . . . .	Br . . . . .	79.96	.07996	2.90287
<b>Carbon dioxide</b> . . . . .	CO <sub>2</sub> . . . . .	44.00	.02200	2.34242
<b>Chlorine</b> . . . . .	Cl . . . . .	35.45	.03545	2.54962
<b>Copper</b> . . . . .	Cu . . . . .	63.6	.0636	2.80346
oxide . . . . .	CuO . . . . .	79.6	.07960	2.90001
sulphate . . . . .	CuSO <sub>4</sub> . . . . .	159.66	.15966	1.20319
" . . . . .	CuSO <sub>4</sub> .5H <sub>2</sub> O . . . . .	249.74	.24974	1.39749
<b>Cyanogen</b> . . . . .	CN . . . . .	26.04	.02604	2.41564
<b>Hydrobromic acid</b> . . . . .	HBr . . . . .	80.968	.08097	2.90832
<b>Hydrochloric acid</b> . . . . .	HCl . . . . .	36.458	.03646	2.56182
<b>Hydrocyanic acid</b> . . . . .	HCN . . . . .	27.048	.02705	2.43217
<b>Hydroiodic acid</b> . . . . .	HI . . . . .	127.98	.12800	1.10721
<b>Iodine</b> . . . . .	I . . . . .	126.97	.12700	1.10380
<b>Potassium bromide</b> . . . . .	KBr . . . . .	119.11	.11911	1.07595
chloride . . . . .	KCl . . . . .	74.60	.07460	2.87274
cyanide . . . . .	KCN . . . . .	65.19	.06519	2.81418
iodide . . . . .	KI . . . . .	166.12	.16612	1.22042
sulphide . . . . .	K <sub>2</sub> S . . . . .	110.36	.05518	2.74178
sulphocyanate . . . . .	KCNS . . . . .	97.25	.09725	2.98789
<b>Silver</b> . . . . .	Ag . . . . .	107.93	.10793	1.03314
nitrate . . . . .	AgNO <sub>3</sub> . . . . .	169.97	.16997	1.23037
<b>Sodium bromide</b> . . . . .	NaBr . . . . .	103.01	.10301	1.01288
chloride . . . . .	NaCl . . . . .	58.50	.05850	2.76716
cyanide . . . . .	NaCN . . . . .	49.09	.04909	2.69099
iodide . . . . .	NaI . . . . .	150.02	.15002	1.17615
sulphide . . . . .	Na <sub>2</sub> S . . . . .	78.16	.03908	2.59195
<b>Zinc</b> . . . . .	Zn . . . . .	65.4	.0327	2.51455
oxide . . . . .	ZnO . . . . .	81.4	.0407	2.60959
sulphate . . . . .	ZnSO <sub>4</sub> . . . . .	161.46	.08073	2.90703
" . . . . .	ZnSO <sub>4</sub> .7H <sub>2</sub> O . . . . .	287.57	.14378	1.15770

XII.—PHYSICAL AND CHEMICAL CONSTANTS  
OF OILS

By ALBERT F. SEEKER

Name.	°C.	Specific Gravity.	Solidifying Point, °C.	Hehner Value.
Almond . . . . .	15°	0.9175-0.9195	-10 to -20	96.2
Beech nut . . . . .	15°	0.9200-0.9225	-17	95.2
Black Mustard . . . . .	15°	0.916-0.920	-17	95.1
Candlenut . . . . .	15.5°	0.9256	.....	95.5
Castor . . . . .	15.5°	0.9600-0.9679	-10 to -18	.....
Cherry Laurel . . . . .	15°	0.9230	-19 to -20	.....
Cocoanut . . . . .	40°	0.9115	22-14	88.6-90
Cod liver . . . . .	15°	0.9210-0.9280	0 to -10	95.3
Corn (Maize) . . . . .	15.5°	0.9213-0.9250	.....	93-96
Cottonseed . . . . .	15°	0.9220-0.9250	.....	95-96
Croton . . . . .	15°	0.9500	-16	89.0
Fir seed . . . . .	15°	0.9215-0.9250	-18 to -20	.....
Grape seed . . . . .	15°	0.9350	-10 to -13	92
Hazel nut . . . . .	15°	0.9146-0.9170	-17	95.6
Hemp seed . . . . .	15°	0.9255-0.9280	-27	.....
Herring . . . . .	15.5°	0.9202-0.9390	.....	95.6
Lard oil . . . . .	15.5°	0.9148-0.9175	.....	.....
Linseed . . . . .	15°	0.9315-0.9345	-27	95.5
Menhaden . . . . .	15.5°	0.927-0.933	-4	.....
Neat's foot . . . . .	15°	0.9133-0.9160	0 to 1.5	.....
Olive . . . . .	15.5°	0.9155-0.9180	-6 to 2	95
Olive kernel . . . . .	15°	0.9184-0.9191	.....	.....
Palm . . . . .	15°	0.9210-0.9245	.....	95
Palm nut . . . . .	15°	0.9520	20.5	87.6-91.1
Peach kernel . . . . .	15°	0.9180-0.9215	below -20	.....
Peanut (Arachis) . . . . .	15.5°	0.9110-0.9220	-3 to 0	95.8
Poppy seed . . . . .	15.5°	0.9240-0.9370	-18	95.2
Porpoise (body oil) . . . . .	15°	0.9258-0.9350	-16	85.5
Porpoise (jaw oil) . . . . .	15°	0.9258	.....	70.2
Pumpkin seed . . . . .	15°	0.9237	-15.5	96.2
Rape (Colza) . . . . .	15.5°	0.9132-0.9168	-2 to -10	95.1
Safflower (Saffron) . . . . .	15.5°	0.9251-0.9280	.....	95.4
Sardine . . . . .	15°	0.9274-0.9330	.....	94.5
Seal . . . . .	15°	0.9155-0.9263	-2 to -3	95.45
Sesame . . . . .	15.5°	0.9225-0.9244	-5	95.7
Shark liver (Arctic) . . . . .	15°	0.9163-0.9290	.....	86.9
Sperm oil . . . . . [nose]	15°	0.8781-0.8835	15.5	.....
Sperm oil, Arctic (Bottle-	15°	0.8764	.....	.....
Sunflower . . . . .	15°	0.9240-0.9258	-18.5	95.0
Tung (Chinese Wood oil) . .	15°	0.9360-0.9432	below -17	96.2
Walnut (Nut) . . . . .	15°	0.9250-0.9260	-27.5	95.4
Whale . . . . .	15.5°	0.9250	below -2	93.5
White Mustard . . . . .	15.5°	0.914-0.916	-8 to -16	96.2

Name.	Saponifica- tion Value.	Iodine Value.	Mauméné Number.	°C.	Refractive Index.
Almond.....	191	86-97	45-52.5	60	1.4555
Beech nut.....	191-196	104-111	64	.....	.....
Black mustard.....	174	96-110	43	40	1.4649-1.4656
Candlenut.....	192.6	163.7	.....	15	1.4759
Castor.....	183-186	83-88.5	46-47	15	1.4799
Cherry laurel .....	194	108.9	44.5	.....	.....
Cocanut.....	246-260	8-12	21	40	1.4481
Cod liver.....	171-189	135-168	102-113	15	1.4800-1.4852
Corn (Maize).....	188-193	113-125	74-89	15.5	1.4760-1.4768
Cottonseed.....	193-195	108-110	75-90	15.5	1.4737-1.4757
Croton.....	210-215	102-104	.....	27	1.4468
Fir seed.....	191.3	119.5	98.5	.....	.....
Grape seed.....	178.5	96	53	.....	.....
Hazel nut.....	192	83-90	36	.....	.....
Hemp seed.....	192.5	148	97	.....	.....
Herring.....	167-194	123.5	.....	.....	.....
Lard oil.....	195-198	69-80	33-47	15.5	1.4702-1.4720
Linseed.....	192-195	171-201	110-126	15	1.4820-1.4852
Menhaden.....	190.6	139-173	.....	.....	.....
Neat's foot.....	194.3	69.3-73.2	47-48.5	15	1.4695-1.4708
Olive.....	189-194.6	77.5-89.8	38-52	15.5	1.4703-1.4718
Olive kernel.....	183	87.4	.....	25	1.4682
Palm.....	196-202	51.5	.....	60	1.4510
Palm nut.....	242-250	13-14	.....	60	1.4431
Peach kernel.....	192.5	93-109	42.5	25	1.4697-1.4705
Peanut (Arachis).....	189-196	83-105	44.67	15.5	1.4707-1.4731
Poppy seed.....	195	133-157.5	71-88	15.5	1.4766-1.4774
Porpoise (body oil).....	195-224.8	110-120	50	25	1.4677
Porpoise (jaw oil).....	254-272	22-50	.....	.....	.....
Pumpkin seed.....	188.4	123-130	.....	25	1.4724-1.4738
Rape (Colza).....	170-179	93-104	50-67	15.5	1.4720-1.4752
Safflower (Saffron).....	186.6-193	129.8-150	.....	40	1.4693
Sardine.....	189-193	160-193	.....	.....	.....
Seal.....	189-196	127-111	.....	.....	.....
Sesame.....	188-193	103-114	61-68.5	15.5	1.4748-1.4762
Shark liver (Arctic).....	161-188.5	114-143.5	.....	.....	.....
Sperm oil.....[nose]	125.2-143	70-90	51	15.5	1.4665-1.4672
Sperm oil, Arctic (Bottle-)	123-135.9	67-82.1	41-47	.....	.....
Sunflower.....	193.5	119-135	60-75	25	1.4736
Tung (Chinese Wood oil) .	193	150-165	.....	19	1.503
Walnut (Nut).....	195	145	103	40	1.4690
Whale.....	188	121-136	.....	25	1.4723
White Mustard.....	170-174	92-97	44-49	40	1.4649

Name.	Acid Value.	% Unsaponifiable Matter.	Other Values.
Almond.....	1.5	.....	.....
Black mustard.....	1.36-7.35	.....	.....
Candlenut.....	8.1	0.76	.....
Castor.....	0.14-14.61	.....	Acl. V. 153-156*
Cocoanut.....	5-50	.....	R.M. 6.8-8.4
Cod liver.....	0.36-25	0.54-9.87	Acl. V. 4-8
Corn (Maize).....	1.7-20.6	1.35-2.86	.....
Cottonseed.....	0.0	0.73-1.64	Acl. V. 7.6-18
Croton.....	.....	0.55	R.M. 12-13.6
Grape seed.....	16.2	.....	Acl. V. 144.5
Hazel nut.....	.....	0.5	.....
Hemp seed.....	.....	1.08	.....
Herring.....	1.8-44	0.99-10.7	.....
Lard oil.....	.....	.....	.....
Linseed.....	0.8-8.4	0.42-1.9	.....
Menhaden.....	3-11.6	1.6-6.7	.....
Neat's foot.....	.....	.....	Acl. V. 22.0
Olive.....	1.9-50	0.46-1.0	.....
Olive kernel.....	2-3.5	.....	.....
Palm.....	24-200	.....	.....
Palm nut.....	8.4	.....	.....
Peanut (Arachis).....	1.2-32	0.54-0.94	.....
Poppy seed.....	0.7-11.0	0.43	.....
Porpoise (body oil).....	1.2	3.7	R. No. 23.5
Porpoise (jaw oil).....	5.0	16.4	R. No. 47.8-65.8
Rape (Colza).....	1.4-13.2	0.58-1.0	.....
Safflower (Saffron).....	0.33-20	.....	Acl. V. 16.1
Sardine.....	4-25	0.5-1.4	.....
Seal.....	1.9-40	0.38-1.4	Acl. V. 33-34
Sesame.....	0.2-46	0.95-1.32	.....
Shark liver (Arctic).....	3-7	5.46-10.2	.....
Sperm oil.....	13.2	37-41	M. Pt. { 25.5-25.7 23.5-26.5
Sperm oil, Arctic (Bottle-nose).....	.....	31.7-42.6	
Sunflower.....	11.2	0.31	.....
Tung (Chinese Wood oil).....	7.6-12	0.44	.....
Whale.....	0.5-37	0.92-3.72	†Acl. V. 11.6-17.2
White Mustard.....	5.4	.....	.....

\* Polarizes (200 mm.) +21.9 to +28°V.

† Old oil has acetyl value at 23.

Acl. v. = Acetyl Value.

R.M. = Reichert-Meissl Value.

R. No. = Reichert Value.

M. Pt. = Melting Point.

Name.	Mixed Fatty Acids.			
	Melting Point, °C.	Acid Value.	Iodine Value.	Other Values.
Almond.....	13-14	204	93-96.5	R.I. (60°) 1.4461
Beech nut.....	23-24	.....	114	.....
Black mustard.....	16	187.1	109.6	.....
Candlenut.....	20-21	.....	.....	.....
Castor.....	13	192.1	87-93	R.I. (60°) 1.4546
Cherry Laurel.....	20-22	.....	112.1	.....
Cocoanut.....	25-27	258-266	8.4-9.3	R.I. (60°) 1.4295
Cod liver.....	21-25	204-207	130.5-170	R.I. (60°) 1.4521
Corn (Maize).....	18-20	198.4	119.5	.....
Cottonseed.....	35-38	202-208	111-115	R.I. (60°) 1.4460
Croton.....	.....	201	111.5	S.P. 16.7° C.
Fir seed.....	16-19	.....	121.5	.....
Grape seed.....	24	187.4	99	.....
Hazel nut.....	22-24	200.6	91.3-97.6	.....
Hemp seed.....	18-19	.....	141	.....
Herring.....	.....	178.5	.....	.....
Lard oil.....	33.2-38.4	.....	.....	.....
Linseed.....	17-21	197	179-182	R.I. (60°) 1.4546
Neat's foot.....	29.8-30.8	.....	61.9-63.3	.....
Olive.....	19.2-31.0	193	86-90	R.I. (60°) 1.4410
Palm.....	47-50	205.6	53.3	Titer 36-45.5
Palm nut.....	25-28.5	258-264	12.0	R.I. (60°) 1.4310
Peach kernel.....	10-18	200.9	94-101	.....
Peanut (Arachis).....	26-36.4	201.6	96-103	R.I. (60°) 1.4461
Poppy seed.....	20-25.8	199	139	R.I. (60°) 1.4506
Porpoise (body oil).....	.....	207	126	R.I. (25°) 1.4622
Pumpkin seed.....	28-29	197	133.6	.....
Rape (Colza).....	16-19	185	99-103	R.I. (60°) 1.4991
Safflower (Saffron).....	.....	.....	.....	Titer 16° C.
Sardine.....	.....	177-185	.....	.....
Seal.....	22-33	193.2	.....	.....
Sesame.....	26-32	200.4	110.5	R.I. (60°) 1.4461
Sperm oil.....[nose)	13.3	23.6	83.2-85.6	F.A. 60-64%
Sperm oil, Arctic (Bottle-	10.3-10.8	.....	82.7	F.A. 61-65%
Sunflower.....	22-24	201.6	124-134	R.I. (60°) 1.4531
Tung (Chinese Wood oil)...	31-43.8	188.8	144-159	.....
Walnut (Nut).....	16-18	200.2	150	.....
Whale.....	27.0	.....	131.2	.....
White Mustard.....	15-16	185.8	95.3	.....

R.I. = Refractive Index. S.P. = Solidifying Point. F.A. = Fatty Acids.

XIII. — PHYSICAL AND CHEMICAL CONSTANTS  
OF FATS AND WAXES

By ALBERT F. SEEKER

Name.	°C.	Specific Gravity.	Solidifying Point, °C.	Hehner Value.	Saponification Value.
Beef marrow.....	15	0.9311–0.9380	31–29	.....	199
Beef tallow.....	15	0.943–0.952	27–35	95.6	193.2–200
Beeswax.....	15	0.964–0.970	60.5–62.8	.....	90–102
Bone fat.....	15	0.914–0.916	15–17	.....	190.9
Butter fat.....	15	0.926–0.940	20–23	86.5–89.8	227
Carnaüba wax.....	15	0.990–0.999	80–81	.....	79–95
Chicken fat.....	15	0.9241	21–27	.....	193.5
Chinese wax (insect wax)	15	0.926–0.970	80.5–81	.....	805–93
Cocoa butter.....	15	0.9500–0.9760	21.5–23	94.6	193.5
Cottonseed Stearine....	15	0.9188–0.9230	16–22	95.9	195
Dog fat.....	15	0.9229	21–23	65–95	195.4
Goose (domestic).....	15	0.9274	18–20	95	193.1
Goose (wild).....	15	0.9158	18–20	.....	196
Hare fat.....	15	0.9349	17–23	95.4	200.9
Horse fat.....	15	0.9189	30–43	95–96	195–197
Human fat.....	25	0.9033	15	.....	195
Japan wax.....	15	0.9700–0.9800	48.5–53	90.6	217–237.5
Lard.....	15.5	0.934–0.938	27.1–29.9	93–96	195.4
Laurel oil.....	15	0.9332	25	.....	197.9
Mutton tallow.....	15	0.937–0.952	27–35	95.5	192–195.2
Myrtle wax.....	15	0.995	39–43	.....	208.7
Nutmeg butter (mace butter)	15	0.945–0.996	41–42	.....	154–191
Rabbit fat (tame).....	15	0.9342	22–24	95.5	202.6
Rabbit fat (wild).....	15	0.9393	17–22	.....	199.3
Spermaceti.....	15	0.905–0.960	42–47	.....	123–135
Vegetable tallow (Chin.)	15	0.9180	27–31	.....	200.3
Wool fat.....	17	0.9413–0.9449	30–30.2	.....	102.4

# XIII. — PHYSICAL AND CHEMICAL CONSTANTS OF FATS AND WAXES—(*Continued*)

Name.	Iodine Value.	° C.	Refractive Index.	Acid Value.	% Unsaponifiable Matter.
Beef marrow.....	55.4	...	.....	1.6	.....
Beef tallow.....	38-46	40	1.4586	3.5-50	.....
Beeswax.....	7.9-13.8	65	1.4448-1.4463	16.8-21.2	52-55*
Bone fat.....	46-55.8	...	.....	29.6-53	0.5-1.8
Butter fat.....	26-38	25	1.4590-1.4620	0.45-35.4	0.33-.56
Carnaüba wax.....	13.5	84	1.4520-1.4541	4-7	55*
Chicken fat.....	66.7	...	.....	1.2	.....
Chinese wax (Insect wax)	1.4	...	.....	traces	.....
Cocoa butter.....	32-41	60	1.4496	1.1-1.88	.....
Cottonseed Stearine.....	90-103	...	.....	.....	.....
Dog fat.....	58.5	...	.....	1.79	.....
Goose (domestic).....	67-71	40	1.4593-1.4596	0.59	.....
Goose (wild).....	99.6	...	.....	0.86	.....
Hare fat.....	102.2	40	1.4586	2.73	.....
Horse fat.....	71-86	40	1.4617	0.0-2.44	.....
Human fat.....	61.5	...	.....	.....	.....
Japan wax.....	4.9-10.6	65	1.4477-1.4492	7.33	1.1-1.63
Lard.....	50-70	40	1.4584-1.4601	0.54-1.28	0.23
Laurel oil.....	68-80	...	.....	26.3	.....
Mutton tallow.....	35-46	60	1.4510	1.7-14.0	.....
Myrtle wax.....	10.7	...	.....	3-4.4	.....
Nutmeg butter (Mace butter)	40-52	40	1.4579-1.4812	17-44.8	.....
Rabbit fat (tame).....	67.6	40	1.4586	6.2	.....
Rabbit fat (wild).....	99.8	...	.....	7.2	.....
Spermaceti.....	3.8-9.5†	...	.....	0.5-1.35†	51.5*
Vegetable tallow(Chinese)	28-37	...	.....	2.2-7.5	.....
Wool fat.....	17.1-35.3	...	.....	.....	43.1-51.8*

\* Plus Alcohols.  
† Commercial Samples.

XIII. — PHYSICAL AND CHEMICAL CONSTANTS OF FATS AND WAXES—(Concluded)

Name.	Other Values.	Mixed Fatty Acids.			
		Melting Point, °C.	Acid Value.	Iodine Value.	Other Values.
Beef marrow.....		44-46	204.5	55.5	.....[46.2
Beef tallow.....		43-44	197.2	41.3	Titer 37.9-
Beeswax.....	{ E.V. 72-78. R.V.3.5-4.2	.....	.....	.....	.....
Bone fat.....	Acl. V. 11.3	30	200	55.7-57.4	.....
Butter fat.....	R.M. 20.63- 33.15	38-40	210-220	28-31	R.I. (60°) 1.437
Chicken fat.....	R. No. 1.0	38-40	200.8	64.6	.....
Cocoa butter.....	M. Pt. 28-33	48-50	190	33-39	{ R.I. (60°) 1.4220
Cottonseed Stearine.....		27-30	.....	94	Titer 35.1
Dog fat.....		39-40.5	199.2	50.2	.....
Goose (domestic) ...	R. No. 0.98	38-40	202.4	65.3	.....
Goose (wild).....	R.M. 0.2-0.3	34-40	196.4	65.1	.....
Hare fat.....	R. No. 1.59	44-47	209.0	93.3	{ R.I. (40°) 1.4495
Horse fat.....		37.5-39.5	202.6	84-87	Titer 33.7
Human fat.....	..... [31.2	35.5	.....	64	.....
Japan wax.....	Acl. V. 27-	56-62	213.7	.....	.....
Lard.....	Acl. V. 2.6	43-44	201.8	64	{ R.I. (60°) 1.4395
Laurel oil.....	R. No. 1.6	.....	.....	81.8	Titer 15.1
Mutton tallow.....		49-50	210	34.8	Titer 40.15; 48.02
Myrtle wax. [butter).....		47.5	230.9	.....	.....
Nutmeg butter (Mace	R.M.1-4.2	42.5	.....	.....	Titer 35.9
Rabbit fat (tame)...	R. No. 2.8	40-42	218.1	64.4	{ R.I. (40°) 1.4495
Rabbit fat (wild)...	R. No. 0.7	39-41	209.5	101.1	.....
Spermaceti.....	Acl. V. 2.63	.....	.....	.....	.....
Vegetable tallow (Chinese)		53-57	182-208	30-39	.....
Wool fat.....	Acl. V. 23.3	41.8	.....	17	.....

E.V. = Ether Value = Saponification Value minus Acid Value.  
R.V. = Ratio Value = Ether Value divided by Acid Value.  
Acl. V. = Acetyl Value.  
R.M. = Reichert — Meissl Value.  
R. No. = Reichert Value.  
M. Pt. = Melting Point.  
R.I. = Refractive Index.



XIV.—PHYSICAL CONSTANTS OF LUBRICATING OILS

LEWKOWITSCH

Oil.	Specific Gravity.	Viscosity by Redwood's Viscosimeter. Standard for Viscosity; Sperm Oil at 70° C.=100.		Flash Point. Close Test.	Cold Test.
		60° F.	70° F.		
Refined Mineral Oils					
Scotch .....	0.890-0.895	100-130	40-50	320-350	32
Scotch .....	0.885-0.890	75-100	35-40	300-325	32
Scotch .....	0.875-0.880	50-60	25-30	300-325	32
American .....	0.915-0.920	400-425	90-100	375-425	32
American .....	0.905-0.910	200-225	55-65	350-400	32
American .....	0.885-0.890	75-100	35-40	325-350	32
American .....	0.875-0.880	65-75	30-35	325-350	32
Russian .....	0.910-0.915	1200-1500	200-250	400-425	25
Russian .....	0.905-0.912	700-800	125-150	350-375	25
Russian .....	0.895-0.900	220-250	60-65	325-350	15
Russian .....	0.895-0.900	125-175		300-325	10
Southern Sperm Oil .....	0.8807	100.1	45.4	457.5	41.7
Arctic Sperm Oil .....	0.8804	105.3	47.2	446.2	39.2
White Whale Oil .....	0.9207	187.7	71.3	476.0	27.2
Neat's Foot Oil .....	0.9178	247	82.4	470.3	34.4
Lard Oil .....	0.9172	223.2	79.4	493.9	39.6
Olive Oil .....	0.9167	213.2	75.0	437.5	27
Rape Oil, East India, refined ..	0.916	250.4	88.1	478.6	26.4
Rape Oil, Black Sea, refined ..	0.9209	226.9	78.8	465.4	27
Cottonseed Oil, refined .....	0.9235	190.4	69.8	523	30
Castor Oil .....	0.963	2500	390	487	0

# XV.—PHYSICAL AND CHEMICAL CONSTANTS OF REPRESENTATIVE SAMPLES OF LUBRICATING OILS

By ALBERT F. SEEKER

Name.	Sp. Gr. 60° F.	Flash Test °F.	Fire Test °F.	Cold Test °F.	Saponif- able Matter.*	Ash. %	Acidity or Alkalin- ity.	Other Tests.
Air Compressor Oil.....	0.8857	455	525	25	trace	none	neutral	No rosin oil. Vis. 261.7.§
Air Compressor Oil.....	0.8654	410	460	-2	none	none	neutral	No rosin oil.
Car Oil .....	0.8824	354	400	5	none	none	neutral	T. S. M. 1%.†
Cutting Oil.....	0.9036	345	425	31	82.9%	none	3.16%	Mixture lard and min. oils. Vis. 8.6§
Cylinder Oil.....	0.8921	535	600¶	60	20%	trace	neutral	T. S. M. less than 5%.
Cylinder Oil.....	0.9020	545	600¶	31	2.4%	none	neutral	T. S. M. trace. Vol. 1.43%·‡
Cylinder Oil .....	0.8993	590	600¶	..	none	0.06%	neutral	T. S. M. none. Vol. 9.74%·‡
Cylinder Oil.....	0.8992	555	600¶	..	none	0.08%	neutral	T. S. M. 2%. Vol. 9.12%·‡
Engine Oil.....	0.9163	430	480	27	1.5%	trace	neutral	No rosin oil. Vis. 28.4.§
Engine Oil.....	0.8845	360	415	5	10%	none	0.05%	T. S. M. none.

Name.	Sp. Gr. 60° F.	Flash Test °F.	Fire Test °F.	Cold Test °F.	Saponifi- able Matter.*	Ash.	Acidity or Alkalin- ity.	Other Tests.
Engine Oil.....	0.8970	400	465	3	none	none	neutral	T. S. M. none. No rosin oil.
Engine Oil.....	0.8810	405	470	14	none	0.02%	neutral	T. S. M. none. No rosin oil.
150° Fire Test Oil.....	0.7864	140	180	...	none	none	neutral	T. S. M. none.
300° Fire Test Oil.....	0.8206	266	300	32	none	none	neutral	T. S. M. none.
High Speed Engine Oil ..	0.9152	400	465	5	17.2%	0.06%	1.09%	T. S. M. none. No rosin oil.
High Speed Engine Oil ..	0.9149	400	475	3	15.3%	0.04%	1.06%	T. S. M. none. No rosin oil.
Ice Machine Oil.....	0.8941	430	495	-4	none	0.13%	neutral	T. S. M. trace. No rosin oil.
Machine Oil.....	0.8689	420	480	0	trace	none	neutral	No rosin oil. Vis. 11.7.§
Marine Engine Oil.....	0.8812	405	440	17	none	trace	neutral	No rosin oil.
Marine Engine Oil.....	0.8765	435	500	5	none	0.03%	neutral	No rosin oil.
Marine Engine Oil.....	0.9090	405	465	0	12.0%	0.15%	0.75%	No rosin oil.
Marine Machine Oil.....	0.9054	400	470	9	9.0%	0.11%	0.50%	No rosin oil.
Screw-Cutting Oil.....	0.9002	380	425	15	25%	none	1.02%	T. S. M. none.
Transformer Oil.....	0.8646	365	430	2	none	none	neutral	T. S. M. none.

\* Saponifiable Matter. Obtain saponification value in usual way and calculate to rape oil, taking 175 as a mean value.

† T. S. M.=Tarry or suspended matter. Treat 5 c.c. of oil in a graduated tube with 100 c.c. 88° gasoline and allow to settle, reading off the sediment by the graduations.

‡ Vol. = Volatility. Heat 5 grams of oil in a tarred dish at 400° F. for 2 hours and calculate loss in weight to per cent.

|| Calculated to oleic acid.

§ Viscosity. Taken at 70° F. in Engler viscosimeter, water at 70° F.=1.

¶ Above.

**XVI. — TEMPERATURE CORRECTION FOR REFRACTIVE INDICES OF OILS**

By ALBERT F. SEEKER

Substance.	Correction for 1° C.	Substance.	Correction for 1° C.
Black mustard oil..	0.000361	Peanut oil .....	0.000366
Corn oil.....	0.000366	Poppyseed oil .....	0.000369
Cottonseed oil.....	0.000368	Rape oil.. .....	0.000364
Lard oil.....	0.000368	Sesame oil .....	0.000370
Mustard oil.....	0.000360	Sunflower oil.....	0.000368
Olive oil.....	0.000365		

**XVII. — TEMPERATURE CORRECTION FOR SPECIFIC GRAVITY OF OILS**

By ALBERT F. SEEKER

Substance.	Correction for 1° C.	Substance.	Correction for 1° C.
Butter fat.....	0.000617	Olive oil .....	0.000629
Cocoa butter.....	0.000717	Palm nut oil.....	0.000657
Cocoanut oil.....	0.000642	Peanut oil.....	0.000655
Cod-liver oil.....	0.000646	Rape oil.....	0.000620
Cottonseed oil.....	0.000629	Sesame oil.....	0.000624
Lard.....	0.000650	Tallow.....	0.000675
Lard oil.....	0.000658		

**XVIII. — CONVERSION OF ACID VALUE INTO OLEIC ACID**

By ALBERT F. SEEKER

Acid Value.	Oleic Acid, Per cent.	Acid Value.	Oleic Acid, Per cent.
1.....	0.5027	6 .....	3.0162
2.....	1.0054	7 .....	3.5189
3.....	1.5081	8 .....	4.0216
4.....	2.0108	9 .....	4.5243
5.....	2.5135		

XIX. — CONVERSION OF BUTYRO-REFRACTOMETER READINGS TO INDICES OF REFRACTION

By ALBERT F. SEEKER

Butyro-R. Reading.	Index of Refraction.	Differ- ence.	Butyro-R. Reading.	Index of Refraction.	Differ- ence.	Butyro-R. Reading.	Index of Refraction.	Differ- ence.
0.....	1.4220	.....	34.....	1.4481	7	68.....	1.4710	6
1.....	1.4228	8	35.....	1.4488	7	69.....	1.4717	7
2.....	1.4236	8	36.....	1.4495	7	70.....	1.4723	6
3.....	1.4244	8	37.....	1.4502	7	71.....	1.4729	6
4.....	1.4252	8	38.....	1.4510	8	72.....	1.4736	7
5.....	1.4260	8	39.....	1.4517	7	73.....	1.4742	6
6.....	1.4268	8	40.....	1.4524	7	74.....	1.4748	6
7.....	1.4276	8	41.....	1.4531	7	75.....	1.4754	6
8.....	1.4284	8	42.....	1.4538	7	76.....	1.4760	6
9.....	1.4292	8	43.....	1.4545	7	77.....	1.4766	6
10.....	1.4300	8	44.....	1.4552	7	78.....	1.4772	6
11.....	1.4308	8	45.....	1.4559	7	79.....	1.4778	6
12.....	1.4316	8	46.....	1.4566	7	80.....	1.4783	5
13.....	1.4324	8	47.....	1.4573	7	81.....	1.4789	6
14.....	1.4331	7	48.....	1.4580	7	82.....	1.4795	6
15.....	1.4339	8	49.....	1.4587	7	83.....	1.4801	6
16.....	1.4347	8	50.....	1.4593	6	84.....	1.4807	6
17.....	1.4354	7	51.....	1.4600	7	85.....	1.4812	5
18.....	1.4362	8	52.....	1.4607	7	86.....	1.4818	6
19.....	1.4370	8	53.....	1.4613	6	87.....	1.4824	6
20.....	1.4377	7	54.....	1.4620	7	88.....	1.4829	5
21.....	1.4385	8	55.....	1.4626	6	89.....	1.4835	6
22.....	1.4392	7	56.....	1.4633	7	90.....	1.4840	5
23.....	1.4400	8	57.....	1.4640	7	91.....	1.8446	6
24.....	1.4408	8	58.....	1.4646	6	92.....	1.4851	5
25.....	1.4415	7	59.....	1.4653	7	93.....	1.4857	6
26.....	1.4423	8	60.....	1.4659	6	94.....	1.4862	5
27.....	1.4430	7	61.....	1.4666	7	95.....	1.4868	6
28.....	1.4438	8	62.....	1.4672	6	96.....	1.4873	5
29.....	1.4445	7	63.....	1.4679	7	97.....	1.4879	6
30.....	1.4452	7	64.....	1.4685	6	98.....	1.4884	5
31.....	1.4460	8	65.....	1.4691	6	99.....	1.4890	6
32.....	1.4467	7	66.....	1.4698	7	100.....	1.4895	5
33.....	1.4474	7	67.....	1.4704	6	.....	.....	.....

CALCULATION OF GAS ANALYSES

XX. — REDUCTION OF GAS VOLUMES TO 0° AND 760 MM.

Volume at 0° and 760 mm. =  $v \left( \frac{1}{760 (1 + .00367 t)} \right) (P - p)$

$v$  = observed volume of gas

$t$  = observed temperature of gas in degrees Centigrade

$P$  = observed barometric pressure, corrected, in millimeters

$p$  = tension of aqueous vapor in millimeters

The logarithm of the volume at 0° and 760 mm. is obtained by adding the logs of  $v$  and  $\left( \frac{1}{760 (1 + .00367 t)} \right)$  and  $(P - p)$ .

°C.	Logarithm of I $760(1+.00367t)$	Tension aqueous vapor. mm.	°C.	Logarithm of I $760(1+.00367t)$	Tension aqueous vapor. mm.	°C.	Logarithm of I $760(1+.00367t)$	Tension aqueous vapor. mm.
0.	3.11919	4.60	5.8	3.11004	6.90	11.6	3.10108	10.21
0.2	3.11887	4.65	6.0	3.10973	7.00	11.8	3.10078	10.34
0.4	3.11855	4.71	6.2	3.10942	7.09	12.0	3.10047	10.48
0.6	3.11824	4.78	6.4	3.10911	7.19	12.2	3.10017	10.62
0.8	3.11792	4.85	6.6	3.10880	7.29	12.4	3.09986	10.76
1.0	3.11760	4.92	6.8	3.10848	7.39	12.6	3.09956	10.90
1.2	3.11728	4.99	7.0	3.10818	7.49	12.8	3.09925	11.04
1.4	3.11696	5.06	7.2	3.10786	7.60	13.0	3.09895	11.19
1.6	3.11665	5.14	7.4	3.10755	7.70	13.2	3.09864	11.33
1.8	3.11633	5.21	7.6	3.10724	7.81	13.4	3.09834	11.48
2.0	3.11601	5.29	7.8	3.10693	7.91	13.6	3.09804	11.63
2.2	3.11570	5.36	8.0	3.10662	8.02	13.8	3.09773	11.78
2.4	3.11538	5.44	8.2	3.10631	8.13	14.0	3.09743	11.94
2.6	3.11507	5.52	8.4	3.10600	8.24	14.2	3.09713	12.09
2.8	3.11475	5.60	8.6	3.10570	8.36	14.4	3.09682	12.25
3.0	3.11443	5.68	8.8	3.10538	8.47	14.6	3.09652	12.41
3.2	3.11412	5.76	9.0	3.10508	8.58	14.8	3.09622	12.57
3.4	3.11380	5.84	9.2	3.10477	8.70	15.0	3.09592	12.73
3.6	3.11349	5.92	9.4	3.10446	8.82	15.2	3.09561	12.89
3.8	3.11317	6.00	9.6	3.10415	8.94	15.4	3.09531	13.06
4.0	3.11286	6.09	9.8	3.10384	9.06	15.6	3.09501	13.23
4.2	3.11255	6.17	10.0	3.10354	9.18	15.8	3.09471	13.39
4.4	3.11223	6.26	10.2	3.10323	9.30	16.0	3.09441	13.57
4.6	3.11192	6.35	10.4	3.10292	9.43	16.2	3.09411	13.74
4.8	3.11160	6.44	10.6	3.10262	9.55	16.4	3.09381	13.91
5.0	3.11129	6.53	10.8	3.10231	9.68	16.6	3.09351	14.09
5.2	3.11098	6.62	11.0	3.10200	9.81	16.8	3.09321	14.27
5.4	3.11067	6.71	11.2	3.10170	9.94	17.0	3.09291	14.45
5.6	3.11036	6.81	11.4	3.10139	10.07	17.2	3.09261	14.63

°C.	Logarithm of I 760(1+.00367t)	Tension aqueous vapor. mm.	°C.	Logarithm of I 760(1+.00367t)	Tension aqueous vapor. mm.	°C.	Logarithm of I 760(1+.00367t)	Tension aqueous vapor. mm.
17.4	3.09231	14.82	23.4	3.08341	21.39	29.4	3.07469	30.48
17.6	3.09201	15.00	23.6	3.08312	21.65	29.6	3.07440	30.84
17.8	3.09171	15.19	23.8	3.08282	21.91	29.8	3.07411	31.19
18.0	3.09141	15.38	24.0	3.08253	22.18	30.0	3.07383	31.56
18.2	3.09111	15.58	24.2	3.08224	22.45	30.2	3.07354	31.92
18.4	3.09081	15.77	24.4	3.08194	22.72	30.4	3.07325	32.29
18.6	3.09051	15.97	24.6	3.08165	22.99	30.6	3.07297	32.66
18.8	3.09021	16.17	24.8	3.08136	23.27	30.8	3.07268	33.04
19.0	3.08992	16.37	25.0	3.08107	23.55	31.0	3.07239	33.42
19.2	3.08962	16.57	25.2	3.08078	23.83	31.2	3.07211	33.80
19.4	3.08932	16.78	25.4	3.08048	24.11	31.4	3.07182	34.19
19.6	3.08902	16.98	25.6	3.08019	24.40	31.6	3.07154	34.58
19.8	3.08873	17.19	25.8	3.07990	24.69	31.8	3.07125	34.97
20.0	3.08843	17.41	26.0	3.07961	24.99	32.0	3.07097	35.37
20.2	3.08813	17.62	26.2	3.07932	25.28	32.2	3.07068	35.77
20.4	3.08783	17.84	26.4	3.07903	25.58	32.4	3.07039	36.18
20.6	3.08754	18.06	26.6	3.07874	25.89	32.6	3.07011	36.59
20.8	3.08724	18.28	26.8	3.07844	26.19	32.8	3.06983	37.01
21.0	3.08695	18.50	27.0	3.07816	26.50	33.0	3.06954	37.43
21.2	3.08665	18.73	27.2	3.07787	26.82	33.2	3.06926	37.85
21.4	3.08635	18.96	27.4	3.07758	27.13	33.4	3.06897	38.28
21.6	3.08606	19.19	27.6	3.07729	27.45	33.6	3.06869	38.71
21.8	3.08576	19.42	27.8	3.07700	27.78	33.8	3.06841	39.15
22.0	3.08547	19.66	28.0	3.07671	28.10	34.0	3.06812	39.59
22.2	3.08517	19.90	28.2	3.07642	28.43	34.2	3.06784	40.03
22.4	3.08488	20.14	28.4	3.07613	28.77	34.4	3.06756	40.48
22.6	3.08458	20.39	28.6	3.07584	29.10	34.6	3.06727	40.93
22.8	3.08429	20.63	28.8	3.07555	29.44	34.8	3.06699	41.39
23.0	3.08400	20.88	29.0	3.07527	29.78	35.0	3.06671	41.85
23.2	3.08370	21.14	29.2	3.07498	30.13			

# XXI.—CORRECTIONS OF BAROMETER READINGS FOR TEMPERATURE

GLASS SCALE (BUNSEN) mm. TO BE DEDUCTED

Barom- eter Reading, mm.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
700..	0.120	0.240	0.359	0.479	0.599	0.719	0.838	0.958	1.078	1.198
705..	0.121	0.241	0.362	0.483	0.603	0.724	0.844	0.965	1.086	1.206
710..	0.121	0.243	0.364	0.486	0.607	0.729	0.850	0.972	1.093	1.215
715..	0.122	0.245	0.367	0.489	0.612	0.734	0.856	0.979	1.101	1.223
720..	0.123	0.246	0.370	0.493	0.616	0.739	0.862	0.986	1.109	1.232
725..	0.124	0.248	0.372	0.496	0.620	0.744	0.868	0.992	1.116	1.240
730..	0.125	0.250	0.375	0.500	0.625	0.749	0.874	0.999	1.124	1.249
735..	0.126	0.252	0.377	0.503	0.629	0.755	0.880	1.006	1.132	1.258
740..	0.127	0.253	0.380	0.506	0.633	0.760	0.886	1.013	1.140	1.266
745..	0.127	0.255	0.382	0.510	0.637	0.765	0.892	1.020	1.147	1.275
750..	0.128	0.257	0.385	0.513	0.642	0.770	0.898	1.027	1.155	1.283
755..	0.129	0.258	0.388	0.517	0.646	0.775	0.904	1.033	1.163	1.292
760..	0.130	0.260	0.390	0.520	0.650	0.780	0.910	1.040	1.170	0.300
765..	0.131	0.262	0.393	0.524	0.654	0.785	0.916	1.047	1.178	1.309
770..	0.132	0.264	0.395	0.527	0.659	0.790	0.922	1.054	1.186	1.317
775..	0.133	0.265	0.398	0.530	0.663	0.796	0.928	1.061	1.193	1.326
780..	0.133	0.267	0.400	0.534	0.667	0.801	0.934	1.068	1.201	1.335
785..	0.134	0.269	0.403	0.537	0.672	0.806	0.940	1.075	1.209	1.343
790..	0.135	0.270	0.406	0.541	0.676	0.811	0.946	1.081	1.217	1.352
795..	0.136	0.272	0.407	0.544	0.680	0.816	0.952	1.088	1.224	1.360
800..	0.137	0.274	0.411	0.548	0.684	0.821	0.958	1.095	1.232	1.369



XXII.—COEFFICIENT OF EXPANSION OF GASES \*

Gas.	Constant Volume.			Constant Pressure.		
	Temp. ° C.	Pressure, mm.	Coef. of Expansion.	Temp. ° C.	Pressure, mm.	Coef. of Expansion.
Air . . . . .	0-100	5.8	.0037666	0-100	760	.0036706
	0-100	752	.0036660	0-100	1001	.0036728
	0-100	756-833	.0036700	0-100	2620 . . }	.0036964
	0-100	1001	.0036744			.003681
	0-100	2000	.0036903			
	0-100	20000	.0038866			
	0-100	100000	.0041001			
	0-100	517	.003668			
Argon . . . . .	0-100	18.1	.0036753	0-40	518-760	.0037099
Carbon dioxide . .	20-98	760	.0037060	0-40	998	.0037536
	0-100	1743-2388	.0037523	0-40	1377	.0037906
	0-100	7927	.0042519	0-100	2520	.0038455
	0-64	19661.	.005728	0-64	12988	.005136
	64-100	35-40†	.003956	0-64	18856	.006204
	64-100	94-119†	.007018	64-100	46.5†	.004946
	0-100	760	.0036667	0-100	760	.0036688
	0-100	523-681	.0036627			
Carbon monoxide	0-100	.077	.003328	0-100	760	.0036613
Helium . . . . .	12-185	4.7	.003656	0-100	200†	.00332
	0-100	520-694	.0036626	0-100	400†	.00295
	0-100	1100	.0036627	0-100	1000†	.00218
	13-132	0.6	.003021	0-100	1002	.0036732
Nitrogen . . . . .	9-133	5.3	.003290	0-100	200†	.00434
	0-100	760	.0036682	0-100	600†	.00282
	0-40	1002	.0036752	0-100	1000†	.00218
	11-132	0.07	.004161	0-100	100†	.00486
Oxygen . . . . .	9-132	2.5	.003984	0-100	200†	.00534
		354	.00367	0-100	400†	.00459
	21-98	760	.0036743	0-100	600†	.00357
				0-100	1000†	.00241
	22-98	760	.0036757	0-100	760	.0037195
			.0037067			
Sulphur dioxide .	0-100	760	.0038453	0-100	760	.0039028
	0-100	765-1060	.0038591	0-100	980	.0039804
Water vapor . . . .				0-119	760	.004187
				0-200	760	.003938

\* The data of this Table are quoted from Landolt-Börnstein, Phys.-Chem. Tabellen, 1905, p. 215.  
† Atmospheres.

# XXIII. — DENSITY OF

WEIGHT IN GRAMS OF 1 C.C. NITROGEN AT 720 TO

mm.	10°	11°	12°	13°	14°	15°	16°	17°
720	1.13380	1.12881	1.12376	1.11875	1.11369	1.10859	1.10346	1.09828
722	1.13699	1.13199	1.12693	1.12191	1.11684	1.11172	1.10658	1.10139
724	1.14018	1.13517	1.13010	1.12506	1.11999	1.11486	1.10971	1.10450
726	1.14337	1.13835	1.13326	1.12822	1.12313	1.11799	1.11283	1.10761
728	1.14656	1.14153	1.13643	1.13138	1.12628	1.12113	1.11596	1.11073
730	1.14975	1.14471	1.13960	1.13454	1.12942	1.12426	1.11908	1.11384
732	1.15294	1.14789	1.14277	1.13769	1.13257	1.12739	1.12220	1.11695
734	1.15613	1.15107	1.14593	1.14085	1.13572	1.13053	1.12533	1.12006
736	1.15932	1.15424	1.14910	1.14401	1.13886	1.13366	1.12845	1.12317
738	1.16251	1.15742	1.15227	1.14716	1.14201	1.13680	1.13158	1.12629
740	1.16570	1.16060	1.15543	1.15032	1.14515	1.13993	1.13470	1.12940
742	1.16889	1.16378	1.15860	1.15348	1.14830	1.14306	1.13782	1.13251
744	1.17208	1.16696	1.16177	1.15663	1.15145	1.14620	1.14095	1.13562
746	1.17527	1.17014	1.16493	1.15979	1.15459	1.14933	1.14407	1.13873
748	1.17846	1.17332	1.16810	1.16295	1.15774	1.15247	1.14720	1.14185
750	1.18165	1.17650	1.17127	1.16611	1.16088	1.15560	1.15032	1.14496
752	1.18484	1.17968	1.17444	1.16926	1.16403	1.15873	1.15344	1.14807
754	1.18803	1.18286	1.17760	1.17242	1.16718	1.16187	1.15657	1.15118
756	1.19122	1.18603	1.18077	1.17558	1.17032	1.16500	1.15969	1.15429
758	1.19441	1.18921	1.18394	1.17873	1.17347	1.16814	1.16282	1.15741
760	1.19760	1.19239	1.18710	1.18189	1.17661	1.17127	1.16594	1.16052
762	1.20079	1.19557	1.19027	1.18505	1.17976	1.17440	1.16906	1.16363
764	1.20398	1.19875	1.19344	1.18820	1.18291	1.17754	1.17219	1.16674
766	1.20717	1.20193	1.19660	1.19136	1.18605	1.18067	1.17531	1.16985
768	1.21036	1.20511	1.19977	1.19452	1.18920	1.18381	1.17844	1.17297
770	1.21355	1.20829	1.20294	1.19768	1.19234	1.18694	1.18156	1.17608

# NITROGEN (DIETRICH)

770 MM. PRESSURE AND 10° TO 25° CENTIGRADE

mm.	18°	19°	20°	21°	22°	23°	24°	25°
720	1.09304	1.08774	1.08246	1.07708	1.07166	1.06616	1.06061	1.05499
722	1.09614	1.09083	1.08554	1.08015	1.07472	1.06921	1.06365	1.05801
724	1.09924	1.09392	1.08862	1.08322	1.07778	1.07226	1.06669	1.06104
726	1.10234	1.09702	1.09170	1.08629	1.08084	1.07531	1.06973	1.06407
728	1.10544	1.10011	1.09478	1.08936	1.08390	1.07836	1.07277	1.06710
730	1.10854	1.10320	1.09786	1.09243	1.08696	1.08141	1.07581	1.07013
732	1.11165	1.10629	1.10094	1.09550	1.09002	1.08446	1.07885	1.07316
734	1.11475	1.10938	1.10402	1.09857	1.09308	1.08751	1.08189	1.07619
736	1.11785	1.11248	1.10710	1.10165	1.09614	1.09056	1.08493	1.07922
738	1.12095	1.11557	1.11018	1.10472	1.09921	1.09361	1.08796	1.08225
740	1.12405	1.11866	1.11327	1.10799	1.10227	1.09666	1.09100	1.08528
742	1.12715	1.12175	1.11635	1.11086	1.10533	1.09971	1.09404	1.08831
744	1.13025	1.12484	1.11943	1.11393	1.10839	1.10276	1.09708	1.09134
746	1.13335	1.12794	1.12251	1.11700	1.11145	1.10581	1.10012	1.09437
748	1.13645	1.13103	1.12559	1.12007	1.11451	1.10886	1.10316	1.09740
750	1.13955	1.13412	1.12867	1.12314	1.11757	1.11191	1.10620	1.10043
752	1.14266	1.13721	1.13175	1.12621	1.12063	1.11496	1.10924	1.10346
754	1.14576	1.14030	1.13483	1.12928	1.12369	1.11801	1.11228	1.10649
756	1.14886	1.14340	1.13791	1.13236	1.12675	1.12106	1.11532	1.10952
758	1.15196	1.14649	1.13999	1.13543	1.12982	1.12411	1.11835	1.11255
760	1.15506	1.14958	1.14408	1.13850	1.13288	1.12716	1.12139	1.11558
762	1.15816	1.15267	1.14716	1.14157	1.13594	1.13021	1.12443	1.11861
764	1.16126	1.15576	1.15024	1.14464	1.13900	1.13326	1.12747	1.12164
766	1.16436	1.15886	1.15332	1.14771	1.14296	1.13631	1.13051	1.12467
768	1.16746	1.16195	1.15640	1.15078	1.14512	1.13936	1.13355	1.12770
770	1.17056	1.16504	1.15948	1.15385	1.14818	1.14241	1.13659	1.13073



**XXIV**

**TABLE OF LOGARITHMS**

N.	0	1	2	3	4	5	6	7	8	9	P. P.		
100	00 000	043	087	130	173	217	260	303	346	389			
101	432	475	518	561	604	647	689	732	775	817	44	43	42
102	860	903	945	988	*030	*072	*115	*157	*199	*242	1	4	4
103	01 284	326	368	410	452	494	536	578	620	662	2	9	8
104	703	745	787	828	870	912	953	995	*036	*078	3	13	13
105	02 119	160	202	243	284	325	366	407	449	490	4	18	17
106	531	572	612	653	694	735	776	816	857	898	5	22	21
107	938	979	*019	*060	*100	*141	*181	*222	*262	*302	6	26	25
108	03 342	383	423	463	503	543	583	623	663	703	7	31	29
109	743	782	822	862	902	941	981	*021	*060	*100	8	35	34
110	04 139	179	218	258	296	336	376	415	454	493	9	40	38
111	532	571	610	650	689	727	766	805	844	883			
112	922	961	999	*038	*077	*115	*154	*192	*231	*269	41	40	39
113	05 308	346	385	423	461	500	538	576	614	652	1	4	4
114	690	729	767	805	843	881	918	956	994	*032	2	8	8
115	06 070	108	145	183	221	258	296	333	371	408	3	12	12
116	446	483	521	558	595	633	670	707	744	781	4	16	16
117	819	856	893	930	967	*004	*041	*078	*115	*151	5	21	20
118	07 188	225	262	298	335	372	408	445	482	518	6	25	23
119	555	591	628	664	700	737	773	809	846	882	7	29	27
120	918	954	990	*027	*063	*099	*135	*171	*207	*243	8	33	31
121	08 279	314	350	386	422	458	493	529	565	600	9	37	35
122	636	672	707	743	778	814	849	884	920	955			
123	991	*026	*061	*096	*132	*167	*202	*237	*272	*307	38	37	36
124	09 342	377	412	447	482	517	552	587	621	656	1	4	4
125	691	726	760	795	830	864	899	934	968	*003	2	8	7
126	10 037	072	106	140	175	209	243	278	312	346	3	11	11
127	380	415	449	483	517	551	585	619	653	687	4	15	14
128	721	755	789	823	857	890	924	958	992	*025	5	19	18
129	11 059	093	126	160	193	227	261	294	327	361	6	23	22
130	394	428	461	494	528	561	594	628	661	694	7	27	25
131	727	760	793	826	860	893	926	959	992	*024	8	30	29
132	12 057	090	123	156	189	222	254	287	320	352	9	34	32
133	385	418	450	483	516	548	581	613	646	678			
134	710	743	775	808	840	872	905	937	969	*001	35	34	33
135	13 033	066	098	130	162	194	226	258	290	322	1	4	3
136	354	386	418	450	481	513	545	577	609	640	2	7	7
137	672	704	735	767	799	830	862	893	925	956	3	11	10
138	988	*019	*051	*082	*114	*145	*176	*208	*239	*270	4	14	13
139	14 301	333	364	395	426	457	489	520	551	582	5	18	17
140	613	644	675	706	737	768	799	829	860	891	6	21	20
141	922	953	983	*014	*045	*076	*106	*137	*168	*198	7	25	23
142	15 229	259	290	320	351	381	412	442	473	503	8	28	26
143	534	564	594	625	655	685	715	746	776	806	9	32	30
144	836	866	897	927	957	987	*017	*047	*077	*107			
145	16 137	167	197	227	256	286	316	346	376	406	32	31	30
146	435	465	495	524	554	584	613	643	673	702	1	3	3
147	732	761	791	820	850	879	909	938	967	997	2	6	6
148	17 026	056	085	114	143	173	202	231	260	289	3	10	9
149	319	348	377	406	435	464	493	522	551	580	4	13	12
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150	17 609	638	667	696	725	754	782	811	840	869			
151	898	926	955	984	*013	*041	*070	*099	*127	*156	29 28		
152	18 184	213	241	270	298	327	355	384	412	441	1	3	3
153	469	498	526	554	583	611	639	667	696	724	2	6	6
154	752	780	808	837	865	893	921	949	977	*005	3	9	8
155	19 033	061	089	117	145	173	201	229	257	285	4	12	11
156	312	340	368	396	424	451	479	507	535	562	5	15	14
157	590	618	645	673	700	728	756	783	811	838	6	17	17
158	866	893	921	948	976	*003	*030	*058	*085	*112	7	20	20
159	20 140	167	194	222	249	276	303	330	358	385	8	23	22
160	412	439	466	493	520	548	575	602	629	656	9	26	25
161	683	710	737	763	790	817	844	871	898	925	27 26		
162	952	978	*005	*032	*059	*085	*112	*139	*165	*192	1	3	3
163	21 219	245	272	299	325	352	378	405	431	458	2	5	5
164	484	511	537	564	590	617	643	669	696	722	3	8	8
165	748	775	801	827	854	880	906	932	958	985	4	11	10
166	22 011	037	063	089	115	141	167	194	220	246	5	14	13
167	272	298	324	350	376	401	427	453	479	505	6	16	16
168	531	557	583	608	634	660	686	712	737	763	7	19	18
169	789	814	840	866	891	917	943	968	994	*019	8	22	21
170	23 045	070	096	121	147	172	198	223	249	274	9	24	23
171	300	325	350	376	401	426	452	477	502	528	25		
172	553	578	603	629	654	679	704	729	754	779	1	3	
173	805	830	855	880	905	930	955	980	*005	*030	2	5	
174	24 055	080	105	130	155	180	204	229	254	279	3	8	
175	304	329	353	378	403	428	452	477	502	527	4	10	
176	551	576	601	625	650	674	699	724	748	773	5	13	
177	797	822	846	871	895	920	944	969	993	*018	6	15	
178	25 042	066	091	115	139	164	188	212	237	261	7	18	
179	285	310	334	358	382	406	431	455	479	503	8	20	
180	527	551	575	600	624	648	672	696	720	744	9	23	
181	768	792	816	840	864	888	912	935	959	983	24 23		
182	26 007	031	055	079	102	126	150	174	198	221	1	2	2
183	245	269	293	316	340	364	387	411	435	458	2	5	5
184	482	505	529	553	576	600	623	647	670	694	3	7	7
185	717	741	764	788	811	834	858	881	905	928	4	10	9
186	951	975	998	*021	*045	*068	*091	*114	*138	*161	5	12	12
187	27 184	207	231	254	277	300	323	346	370	393	6	14	14
188	416	439	462	485	508	531	554	577	600	623	7	17	16
189	646	669	692	715	738	761	784	807	830	852	8	19	18
190	875	898	921	944	967	989	*012	*035	*058	*081	9	22	21
191	28 103	126	149	171	194	217	240	262	285	307	22 21		
192	330	353	375	398	421	443	466	488	511	533	1	2	2
193	556	578	601	623	646	668	691	713	735	758	2	4	4
194	780	803	825	847	870	892	914	937	959	981	3	7	6
195	29 003	026	048	070	092	115	137	159	181	203	4	9	8
196	226	248	270	292	314	336	358	380	403	425	5	11	11
197	447	469	491	513	535	557	579	601	623	645	6	13	13
198	667	688	710	732	754	776	798	820	842	863	7	15	15
199	885	907	929	951	973	994	*016	*038	*060	*081	8	18	17
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N.	0	1	2	3	4	5	6	7	8	9	P. P.		
200	30 103	125	146	168	190	211	233	255	276	298	1	22	21
201	320	431	363	384	406	428	449	471	492	514		2	2
202	535	557	578	600	621	643	664	685	707	728		4	4
203	750	771	792	814	835	856	878	899	920	942		7	6
204	963	984	*006	*027	*048	*069	*091	*112	*133	*154		9	8
205	31 175	197	218	239	260	281	302	323	345	366	5	11	11
206	387	408	429	450	471	492	513	534	555	576	6	13	13
207	597	618	639	660	681	702	723	744	765	785	7	15	15
208	806	827	848	869	890	911	931	952	973	994	8	18	17
209	32 015	035	056	077	098	118	139	160	181	201	9	20	19
210	222	243	263	284	305	325	346	366	387	408	1	20	
211	428	449	469	490	510	531	552	572	593	613		2	
212	634	654	675	695	715	736	756	777	797	818		4	
213	838	858	879	899	919	940	960	980	*001	*021		6	
214	33 041	062	082	102	122	143	163	183	203	224		8	
215	244	264	284	304	325	345	365	385	405	425	5	10	
216	445	465	486	506	526	546	566	586	606	626	6	12	
217	646	666	686	706	726	746	766	786	806	826	7	14	
218	846	866	885	905	925	945	965	985	*005	*025	8	16	
219	34 044	064	084	104	124	143	163	183	203	223	9	18	
220	242	262	282	301	321	341	361	380	400	420	1	19	
221	439	459	479	498	518	537	557	577	596	616		2	
222	635	655	674	694	713	733	753	772	792	811		4	
223	830	850	869	889	908	928	947	967	986	*005		6	
224	35 025	044	064	083	102	122	141	160	180	199		8	
225	218	238	257	276	295	315	334	353	372	392	5	10	
226	411	430	449	468	488	507	526	545	564	583	6	11	
227	603	622	641	660	679	698	717	736	755	774	7	13	
228	793	813	832	851	870	889	908	927	946	965	8	15	
229	984	*003	*021	*040	*059	*078	*097	*116	*135	*154	9	17	
230	36 173	192	211	229	248	267	286	305	324	342	1	18	
231	361	380	399	418	436	455	474	493	511	530		2	
232	549	568	586	605	624	642	661	680	698	717		4	
233	736	754	773	791	810	829	847	866	884	903		6	
234	922	940	959	977	996	*014	*033	*051	*070	*088		8	
235	37 107	125	144	162	181	199	218	236	254	273	5	9	
236	291	310	328	346	365	383	401	420	438	457	6	11	
237	475	493	511	530	548	566	585	603	621	639	7	13	
238	658	676	694	712	731	749	767	785	803	822	8	14	
239	840	858	876	894	912	931	949	967	985	*003	9	16	
240	38 021	039	057	075	093	112	130	148	166	184	1	17	
241	202	220	238	256	274	292	310	328	346	364		2	
242	382	399	417	435	453	471	489	507	525	543		3	
243	561	578	596	614	632	650	668	686	703	721		5	
244	739	757	775	792	810	828	846	863	881	899		7	
245	917	934	952	970	987	*005	*023	*041	*058	*076	5	9	
246	39 094	111	129	146	164	182	199	217	235	252	6	10	
247	270	287	305	322	340	358	375	393	410	428	7	12	
248	445	463	480	498	515	533	550	568	585	602	8	14	
249	620	637	655	672	690	707	724	742	759	777	9	15	
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N.	0	1	2	3	4	5	6	7	8	9	P. P.	
250	39 794	811	829	846	863	881	898	915	933	950		
251	967	985	*002	*019	*037	*054	*071	*088	*106	*123	18	
252	40 140	157	175	192	209	226	243	261	278	295	1	2
253	312	329	346	364	381	398	415	432	449	466	2	4
254	483	500	518	535	552	569	586	603	620	637	3	5
											4	7
255	654	671	688	705	722	739	756	773	790	807	5	9
256	824	841	858	875	892	909	926	943	960	976	6	11
257	993	*010	*027	*044	*061	*078	*095	*111	*128	*145	7	13
258	41 162	179	196	212	229	246	263	280	296	313	8	14
259	330	347	363	380	397	414	430	447	464	481	9	16
260	497	514	531	547	564	581	597	614	631	647		
261	664	681	697	714	731	747	764	780	797	814	17	
262	830	847	863	880	896	913	929	946	963	979	1	2
263	996	*012	*029	*045	*062	*078	*095	*111	*127	*144	2	3
264	42 160	177	193	210	226	243	259	275	292	308	3	5
											4	7
265	325	341	357	374	390	406	423	439	455	472	5	9
266	488	504	521	537	553	570	586	602	619	635	6	10
267	651	667	684	700	716	732	749	765	781	797	7	12
268	813	830	846	862	878	894	911	927	943	959	8	14
269	975	991	*008	*024	*040	*056	*072	*088	*104	*120	9	15
270	43 136	152	169	185	201	217	233	249	265	281		
271	297	313	329	345	361	377	393	409	425	441	16	
272	457	473	489	505	521	537	553	569	584	600	1	2
273	616	632	648	664	680	696	712	727	743	759	2	3
274	775	791	807	823	838	854	870	886	902	917	3	5
											4	6
275	933	949	965	981	996	*012	*028	*044	*059	*075	5	8
276	44 091	107	122	138	154	170	185	201	217	232	6	10
277	248	264	279	295	311	326	342	358	373	389	7	11
278	404	420	436	451	467	483	498	514	529	545	8	13
279	560	576	592	607	623	638	654	669	685	700	9	14
280	716	731	747	762	778	793	809	824	840	855		
281	871	886	902	917	932	948	963	979	994	*010	15	
282	45 025	040	056	071	086	102	117	133	148	163	1	2
283	179	194	209	225	240	255	271	286	301	317	2	3
284	332	347	362	378	393	408	423	439	454	469	3	5
											4	6
285	484	500	515	530	545	561	576	591	606	621	5	8
286	637	652	667	682	697	712	728	743	758	773	6	9
287	788	803	818	834	849	864	879	894	909	924	7	11
288	939	954	969	984	*000	*015	*030	*045	*060	*075	8	12
289	46 090	105	120	135	150	165	180	195	210	225	9	14
290	240	255	270	285	300	315	330	345	359	374		
291	389	404	419	434	449	464	479	494	509	523	14	
292	538	553	568	583	598	613	627	642	657	672	1	1
293	687	702	716	731	746	761	776	790	805	820	2	3
294	835	850	864	879	894	909	923	938	953	967	3	4
											4	6
295	982	997	*012	*026	*041	*056	*070	*085	*100	*114	5	7
296	47 129	144	159	173	188	202	217	232	246	261	6	8
297	276	290	305	319	334	349	363	378	392	407	7	10
298	422	436	451	465	480	494	509	524	538	553	8	11
299	567	582	596	611	625	640	654	669	683	698	9	13
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900	47	712	727	741	756	770	784	799	813	828	842	15	
901		857	871	885	900	914	929	943	958	972	986		
902	48	001	015	029	044	058	073	087	101	116	130		
903		144	159	173	187	202	216	230	244	259	273		
904		287	302	316	330	344	359	373	387	401	416		
905		430	444	458	473	487	501	515	530	544	558	5	8
906		572	586	601	615	629	643	657	671	686	700	6	9
907		714	728	742	756	770	785	799	813	827	841	7	11
908		855	869	883	897	911	926	940	954	968	982	8	12
909		996	*010	*024	*038	*052	*066	*080	*094	*108	*122	9	14
910	49	136	150	164	178	192	206	220	234	248	262	14	
911		276	290	304	318	332	346	360	374	388	402		
912		415	429	443	457	471	485	499	513	527	541		
913		554	568	582	596	610	624	638	651	665	679		
914		693	707	721	734	748	762	776	790	803	817		
915		831	845	859	872	886	900	914	927	941	955	1	1
916		969	982	996	*010	*024	*037	*051	*065	*079	*092	2	3
917	50	106	120	133	147	161	174	188	202	215	229	3	4
918		243	256	270	284	297	311	325	338	352	365	4	6
919		379	393	406	420	433	447	461	474	488	501	5	7
920		515	529	542	556	569	583	596	610	623	637	6	8
921		651	664	678	691	705	718	732	745	759	772	7	10
922		786	799	813	826	840	853	866	880	893	907	8	11
923		920	934	947	961	974	987	*001	*014	*028	*041	9	13
924	51	055	068	081	095	108	121	135	148	162	175	13	
925		188	202	215	228	242	255	268	282	295	308		
926		322	335	348	362	375	388	402	415	428	441		
927		455	468	481	495	508	521	534	548	561	574		
928		587	601	614	627	640	654	667	680	693	706		
929		720	733	746	759	772	786	799	812	825	838	1	1
930		851	865	878	891	904	917	930	943	957	970	2	3
931		983	996	*009	*022	*035	*048	*061	*075	*088	*101	3	4
932	52	114	127	140	153	166	179	192	205	218	231	4	5
933		244	257	270	284	297	310	323	336	349	362	5	7
934		375	388	401	414	427	440	453	466	479	492	6	8
935		504	517	530	543	556	569	582	595	608	621	7	9
936		634	647	660	673	686	699	711	724	737	750	8	10
937		763	776	789	802	815	827	840	853	866	879	9	12
938		892	905	917	930	943	956	969	982	994	*007	12	
939	53	020	033	046	058	071	084	097	110	122	135		
940		148	161	173	186	199	212	224	237	250	263		
941		275	288	301	314	326	339	352	364	377	390		
942		403	415	428	441	453	466	479	491	504	517		
943		529	542	555	567	580	593	605	618	631	643	1	1
944		656	668	681	694	706	719	732	744	757	769	2	2
945		782	794	807	820	832	845	857	870	882	895	3	4
946		908	920	933	945	958	970	983	995	*008	*020	4	5
947	54	033	045	058	070	083	095	108	120	133	145	5	6
948		158	170	183	195	208	220	233	245	258	270	6	7
949		283	295	307	320	332	345	357	370	382	394	7	8
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												9	11
N.	0	1	2	3	4	5	6	7	8	9	P. P.		

N.	0	1	2	3	4	5	6	7	8	9	P. P.	
350	54 407	419	432	444	456	469	481	494	506	518	13	1
351	531	543	555	568	580	593	605	617	630	642		
352	654	667	679	691	704	716	728	741	753	765		
353	777	790	802	814	827	839	851	864	876	888		
354	900	913	925	937	949	962	974	986	998	*011		
355	55 023	035	047	060	072	084	096	108	121	133	5	7
356	145	157	169	182	194	206	218	230	242	255	6	8
357	267	279	291	303	315	328	340	352	364	376	7	9
358	388	400	413	425	437	449	461	473	485	497	8	10
359	509	522	534	546	558	570	582	594	606	618	9	12
360	630	642	654	666	678	691	703	715	727	739	12	1
361	751	763	775	787	799	811	823	835	847	859		
362	871	883	895	907	919	931	943	955	967	979		
363	991	*003	*015	*027	*038	*050	*062	*074	*086	*098		
364	56 110	122	134	146	158	170	182	194	205	217		
365	229	241	253	265	277	289	301	312	324	336	1	1
366	348	360	372	384	396	407	419	431	443	455	2	2
367	467	478	490	502	514	526	538	549	561	573	3	4
368	585	597	608	620	632	644	656	667	679	691	4	5
369	703	714	726	738	750	761	773	785	797	808	5	6
370	820	832	844	855	867	879	891	902	914	926	6	7
371	937	949	961	972	984	996	*008	*019	*031	*043	7	8
372	57 054	066	078	089	101	113	124	136	148	159	8	10
373	171	183	194	206	217	229	241	252	264	276	9	11
374	287	299	310	322	334	345	357	368	380	392	11	1
375	403	415	426	438	449	461	473	484	496	507		
376	519	530	542	553	565	576	588	600	611	623		
377	634	646	657	669	680	692	703	715	726	738		
378	749	761	772	784	795	807	818	830	841	852		
379	864	875	887	898	910	921	933	944	955	967	1	1
380	978	990	*001	*013	*024	*035	*047	*058	*070	*081	2	2
381	58 092	104	115	127	138	149	161	172	184	195	3	3
382	206	218	229	240	252	263	274	286	297	309	4	4
383	320	331	343	354	365	377	388	399	410	422	5	6
384	433	444	456	467	478	490	501	512	524	535	6	7
385	546	557	569	580	591	602	614	625	636	647	7	8
386	659	670	681	692	704	715	726	737	749	760	8	9
387	771	782	794	805	816	827	838	850	861	872	9	10
388	883	894	906	917	928	939	950	961	973	984	10	1
389	995	*006	*017	*028	*040	*051	*062	*073	*084	*095		
390	59 106	118	129	140	151	162	173	184	195	207		
391	218	229	240	251	262	273	284	295	306	318		
392	329	340	351	362	373	384	395	406	417	428		
393	439	450	461	472	483	494	506	517	528	539	1	1
394	550	561	572	583	594	605	616	627	638	649	2	2
395	660	671	682	693	704	715	726	737	748	759	3	3
396	770	780	791	802	813	824	835	846	857	868	4	4
397	879	890	901	912	923	934	945	956	966	977	5	5
398	988	999	*010	*021	*032	*043	*054	*065	*076	*086	6	6
399	60 097	108	119	130	141	152	163	173	184	195	7	7
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400	60 206	217	228	239	249	260	271	282	293	304	11	1
401	314	325	336	347	358	369	379	390	401	412		
402	423	433	444	455	466	477	487	498	509	520		
403	531	541	552	563	574	584	595	606	617	627		
404	638	649	660	670	681	692	703	713	724	735		
405	746	756	767	778	788	799	810	821	831	842		
406	853	863	874	885	895	906	917	927	938	949		
407	959	970	981	991	*002	*013	*023	*034	*045	*055		
408	61 066	077	087	098	109	119	130	140	151	162		
409	172	183	194	204	215	225	236	247	257	268		
410	278	289	300	310	321	331	342	352	363	374	1	1
411	384	395	405	416	426	437	448	458	469	479	2	2
412	490	500	511	521	532	542	553	563	574	584	3	3
413	595	606	616	627	637	648	658	669	679	690	4	4
414	700	711	721	731	742	752	763	773	784	794	5	6
415	805	815	826	836	847	857	868	878	888	899	6	7
416	909	920	930	941	951	962	972	982	993	*003	7	8
417	62 014	024	034	045	055	066	076	086	097	107	8	9
418	118	128	138	149	159	170	180	190	201	211	9	10
419	221	232	242	252	263	273	284	294	304	315		
420	325	335	346	356	366	377	387	397	408	418	10	1
421	428	439	449	459	469	480	490	500	511	521		
422	531	542	552	562	572	583	593	603	613	624		
423	634	644	655	665	675	685	696	706	716	726		
424	737	747	757	767	778	788	798	808	818	829		
425	839	849	859	870	880	890	900	910	921	931		
426	941	951	961	972	982	992	*002	*012	*022	*033		
427	63 043	053	063	073	083	094	104	114	124	134		
428	144	155	165	175	185	195	205	215	225	236		
429	246	256	266	276	286	296	306	317	327	337		
430	347	357	367	377	387	397	407	417	428	438	9	1
431	448	458	468	478	488	498	508	518	528	538		
432	548	558	568	579	589	599	609	619	629	639		
433	649	659	669	679	689	699	709	719	729	739		
434	749	759	769	779	789	799	809	819	829	839		
435	849	859	869	879	889	899	909	919	929	939		
436	949	959	969	979	988	998	*008	*018	*028	*038		
437	64 048	058	068	078	088	098	108	118	128	137		
438	147	157	167	177	187	197	207	217	227	237		
439	246	256	266	276	286	296	306	316	326	335		
440	345	355	365	375	385	395	404	414	424	434	1	1
441	444	454	464	473	483	493	503	513	523	532	2	2
442	542	552	562	572	582	591	601	611	621	631	3	3
443	640	650	660	670	680	689	699	709	719	729	4	4
444	738	748	758	768	777	787	797	807	816	826	5	5
445	836	846	856	865	875	885	895	904	914	924	6	6
446	933	943	953	963	972	982	992	*002	*011	*021	7	7
447	65 031	040	050	060	070	079	089	099	108	118	8	8
448	128	137	147	157	167	176	186	196	205	215	9	
449	225	234	244	254	263	273	283	292	302	312		
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450	65 321	331	341	350	360	369	379	389	398	408	10	1
451	418	427	437	447	456	466	475	485	495	504		
452	514	523	533	543	552	562	571	581	591	600		
453	610	619	629	639	648	658	667	677	686	696		
454	706	715	725	734	744	753	763	772	782	792		
455	801	811	820	830	839	849	858	868	877	887		
456	896	906	916	925	935	944	954	963	973	982		
457	992	*001	*011	*020	*030	*039	*049	*058	*068	*077		
458	66 087	096	106	115	124	134	143	153	162	172		
459	181	191	200	210	219	229	238	247	257	266		
460	276	285	295	304	314	323	332	342	351	361	9	2
461	370	380	389	398	408	417	427	436	445	455		
462	464	474	483	492	502	511	521	530	539	549		
463	558	567	577	586	596	605	614	624	633	642		
464	652	661	671	680	689	699	708	717	727	736		
465	745	755	764	773	783	792	801	811	820	829		
466	839	848	857	867	876	885	894	904	913	922		
467	932	941	950	960	969	978	987	997	*006	*015		
468	67 025	034	043	052	062	071	080	089	099	108		
469	117	127	136	145	154	164	173	182	191	201		
470	210	219	228	237	247	256	265	274	284	293	8	3
471	302	311	321	330	339	348	357	367	376	385		
472	394	403	413	422	431	440	449	459	468	477		
473	486	495	504	514	523	532	541	550	560	569		
474	578	587	596	605	614	624	633	642	651	660		
475	669	679	688	697	706	715	724	733	742	752		
476	761	770	779	788	797	806	815	825	834	843		
477	852	861	870	879	888	897	906	916	925	934		
478	943	952	961	970	979	988	997	*006	*015	*024		
479	68 034	043	052	061	070	079	088	097	106	115		
480	124	133	142	151	160	169	178	187	196	205	7	4
481	215	224	233	242	251	260	269	278	287	296		
482	305	314	323	332	341	350	359	368	377	386		
483	395	404	413	422	431	440	449	458	467	476		
484	485	494	502	511	520	529	538	547	556	565		
485	574	583	592	601	610	619	628	637	646	655		
486	664	673	681	690	699	708	717	726	735	744		
487	753	762	771	780	789	797	806	815	824	833		
488	842	851	860	869	878	886	895	904	913	922		
489	931	940	949	958	966	975	984	993	*002	*011		
490	69 020	028	037	046	055	064	073	082	090	099	6	5
491	108	117	126	135	144	152	161	170	179	188		
492	197	205	214	223	232	241	249	258	267	276		
493	285	294	302	311	320	329	338	346	355	364		
494	373	381	390	399	408	417	425	434	443	452		
495	461	469	478	487	496	504	513	522	531	539		
496	548	557	566	574	583	592	601	609	618	627		
497	636	644	653	662	671	679	688	697	705	714		
498	723	732	740	749	758	767	775	784	793	801		
499	810	819	827	836	845	854	862	871	880	888		
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500	69 897	906	914	923	932	940	949	958	966	975		
501	984	992	*001	*010	*018	*027	*036	*044	*053	*062		
502	70 070	079	088	096	105	114	122	131	140	148		
503	157	165	174	183	191	200	209	217	226	234		
504	243	252	260	269	278	286	295	303	312	321		
505	329	338	346	355	364	372	381	389	398	406		
506	415	424	432	441	449	458	467	475	484	492		
507	501	509	518	526	535	544	552	561	569	578	1	1
508	586	595	603	612	621	629	638	646	655	663	2	2
509	672	680	689	697	706	714	723	731	740	749	3	3
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510	757	766	774	783	791	800	808	817	825	834	5	5
511	842	851	859	868	876	885	893	902	910	919	6	5
512	927	935	944	952	961	969	978	986	995	*003	7	6
513	71 012	020	029	037	046	054	063	071	079	088	8	7
514	096	105	113	122	130	139	147	155	164	172	9	8
515	181	189	198	206	214	223	231	240	248	257		
516	265	273	282	290	299	307	315	324	332	341		
517	349	357	366	374	383	391	399	408	416	425		
518	433	441	450	458	466	475	483	492	500	508		
519	517	525	533	542	550	559	567	575	584	592		
520	600	609	617	625	634	642	650	659	667	675		
521	684	692	700	709	717	725	734	742	750	759		
522	767	775	784	792	800	809	817	825	834	842	1	1
523	850	858	867	875	883	892	900	908	917	925	2	2
524	933	941	950	958	966	975	983	991	999	*008	3	2
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525	72 016	024	032	041	049	057	066	074	082	090	5	4
526	099	107	115	123	132	140	148	156	165	173	6	5
527	181	189	198	206	214	222	230	239	247	255	7	6
528	263	272	280	288	296	304	313	321	329	337	8	6
529	346	354	362	370	378	387	395	403	411	419	9	7
530	428	436	444	452	460	469	477	485	493	501		
531	509	518	526	534	542	550	558	567	575	583		
532	591	599	607	616	624	632	640	648	656	665		
533	673	681	689	697	705	713	722	730	738	746		
534	754	762	770	779	787	795	803	811	819	827		
535	835	843	852	860	868	876	884	892	900	908		
536	916	925	933	941	949	957	965	973	981	989		
537	997	*006	*014	*022	*030	*038	*046	*054	*062	*070	1	1
538	73 078	086	094	102	111	119	127	135	143	151	2	1
539	159	167	175	183	191	199	207	215	223	231	3	2
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540	239	247	255	263	272	280	288	296	304	312	5	4
541	320	328	336	344	352	360	368	376	384	392	6	4
542	400	408	416	424	432	440	448	456	464	472	7	5
543	480	488	496	504	512	520	528	536	544	552	8	6
544	560	568	576	584	592	600	608	616	624	632	9	6
545	640	648	656	664	672	679	687	695	703	711		
546	719	727	735	743	751	759	767	775	783	791		
547	799	807	815	823	830	838	846	854	862	870		
548	878	886	894	902	910	918	926	933	941	949		
549	957	965	973	981	989	997	*005	*013	*020	*028		
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550	74 036	044	052	060	068	076	084	092	099	107		
551	115	123	131	139	147	155	162	170	178	186		
552	194	202	210	218	225	233	241	249	257	265		
553	273	280	288	296	304	312	320	327	335	343		
554	351	359	367	374	382	390	398	406	414	421		
555	429	437	445	453	461	468	476	484	492	500		
556	507	515	523	531	539	547	554	562	570	578		
557	586	593	601	609	617	624	632	640	648	656		
558	663	671	679	687	695	702	710	718	726	733		
559	741	749	757	764	772	780	788	796	803	811		
560	819	827	834	842	850	858	865	873	881	889		
561	896	904	912	920	927	935	943	950	958	966		
562	974	981	989	997	*005	*012	*020	*028	*035	*043	1	8
563	75 051	059	066	074	082	089	097	105	113	120	2	1
564	128	136	143	151	159	166	174	182	189	197	3	2
565	205	213	220	228	236	243	251	259	266	274	4	3
566	282	289	297	305	312	320	328	335	343	351	5	4
567	358	366	374	381	389	397	404	412	420	427	6	5
568	435	442	450	458	465	473	481	488	496	504	7	6
569	511	519	526	534	542	549	557	565	572	580	8	6
570	587	595	603	610	618	626	633	641	648	656	9	7
571	664	671	679	686	694	702	709	717	724	732		
572	740	747	755	762	770	778	785	793	800	808		
573	815	823	831	838	846	853	861	868	876	884		
574	891	899	906	914	921	929	937	944	952	959		
575	967	974	982	989	997	*005	*012	*020	*027	*035		
576	76 042	050	057	065	072	080	087	095	103	110		
577	118	125	133	140	148	155	163	170	178	185		
578	193	200	208	215	223	230	238	245	253	260		
579	268	275	283	290	298	305	313	320	328	335		
580	343	350	358	365	373	380	388	395	403	410		
581	418	425	433	440	448	455	462	470	477	485		
582	492	500	507	515	522	530	537	545	552	559	7	7
583	567	574	582	589	597	604	612	619	626	634	1	1
584	641	649	656	664	671	678	686	693	701	708	2	1
585	716	723	730	738	745	753	760	768	775	782	3	2
586	790	797	805	812	819	827	834	842	849	856	4	3
587	864	871	879	886	893	901	908	916	923	930	5	4
588	938	945	953	960	967	975	982	989	997	*004	6	4
589	77 012	019	026	034	041	048	056	063	070	078	7	5
590	085	093	100	107	115	122	129	137	144	151	8	6
591	159	166	173	181	188	195	203	210	217	225	9	6
592	232	240	247	254	262	269	276	283	291	298		
593	305	313	320	327	335	342	349	357	364	371		
594	379	386	393	401	408	415	422	430	437	444		
595	452	459	466	474	481	488	495	503	510	517		
596	525	532	539	546	554	561	568	576	583	590		
597	597	605	612	619	627	634	641	648	656	663		
598	670	677	685	692	699	706	714	721	728	735		
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600	77 815	822	830	837	844	851	859	866	873	880		
601	887	895	902	909	916	924	931	938	945	952		
602	960	967	974	981	988	996	*003	*010	*017	*025		
603	78 032	039	046	053	061	068	075	082	089	097		
604	104	111	118	125	132	140	147	154	161	168		
605	176	183	190	197	204	211	219	226	233	240		
606	247	254	262	269	276	283	290	297	305	312		
607	319	326	333	340	347	355	362	369	376	383		
608	390	398	405	412	419	426	433	440	447	455		
609	462	469	476	483	490	497	504	512	519	526	1	8
610	533	540	547	554	561	569	576	583	590	597	2	1
611	604	611	618	625	633	640	647	654	661	668	3	2
612	675	682	689	696	704	711	718	725	732	739	4	3
613	746	753	760	767	774	781	789	796	803	810	5	4
614	817	824	831	838	845	852	859	866	873	880	6	5
615	888	895	902	909	916	923	930	937	944	951	7	6
616	958	965	972	979	986	993	*000	*007	*014	*021		
617	79 029	036	043	050	057	064	071	078	085	092		
618	099	106	113	120	127	134	141	148	155	162		
619	169	176	183	190	197	204	211	218	225	232		
620	239	246	253	260	267	274	281	288	295	302		
621	309	316	323	330	337	344	351	358	365	372		
622	379	386	393	400	407	414	421	428	435	442		
623	449	456	463	470	477	484	491	498	505	511		
624	518	525	532	539	546	553	560	567	574	581		
625	588	595	602	609	616	623	630	637	644	650	1	7
626	657	664	671	678	685	692	699	706	713	720	2	1
627	727	734	741	748	754	761	768	775	782	789	3	2
628	796	803	810	817	824	831	837	844	851	858	4	3
629	865	872	879	886	893	900	906	913	920	927	5	4
630	934	941	948	955	962	969	975	982	989	996	6	5
631	80 003	010	017	024	030	037	044	051	058	065		
632	072	079	085	092	099	106	113	120	127	134		
633	140	147	154	161	168	175	182	188	195	202		
634	209	216	223	229	236	243	250	257	264	271		
635	277	284	291	298	305	312	318	325	332	339		
636	346	353	359	366	373	380	387	393	400	407		
637	414	421	428	434	441	448	455	462	468	475		
638	482	489	496	502	509	516	523	530	536	543		
639	550	557	564	570	577	584	591	598	604	611		
640	618	625	632	638	645	652	659	665	672	679	1	6
641	686	693	699	706	713	720	726	733	740	747	2	1
642	754	760	767	774	781	787	794	801	808	814	3	2
643	821	828	835	841	848	855	862	868	875	882	4	3
644	889	895	902	909	916	922	929	936	943	949	5	4
645	956	963	969	976	983	990	996	*003	*010	*017	6	5
646	81 023	030	037	043	050	057	064	070	077	084		
647	090	097	104	111	117	124	131	137	144	151		
648	158	164	171	178	184	191	198	204	211	218		
649	224	231	238	245	251	258	265	271	278	285		
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650	81 291	298	305	311	318	325	331	338	345	351		
651	358	365	371	378	385	391	398	405	411	418		
652	425	431	438	445	451	458	465	471	478	485		
653	491	498	505	511	518	525	531	538	544	551		
654	558	564	571	578	584	591	598	604	611	617		
655	624	631	637	644	651	657	664	671	677	684		
656	690	697	704	710	717	723	730	737	743	750		
657	757	763	770	776	783	790	796	803	809	816		
658	823	829	836	842	849	856	862	869	875	882		
659	889	895	902	908	915	921	928	935	941	948		
660	954	961	968	974	981	987	994	*000	*007	*014		
661	82 020	027	033	040	046	053	060	066	073	079	7	7
662	086	092	099	105	112	119	125	132	138	145	1	1
663	151	158	164	171	178	184	191	197	204	210	2	1
664	217	223	230	236	243	249	256	263	269	276	3	2
665	282	289	295	302	308	315	321	328	334	341	4	3
666	347	354	360	367	373	380	387	393	400	406	5	4
667	413	419	426	432	439	445	452	458	465	471	6	4
668	478	484	491	497	504	510	517	523	530	536	7	5
669	543	549	556	562	569	575	582	588	595	601	8	6
670	607	614	620	627	633	640	646	653	659	666	9	6
671	672	679	685	692	698	705	711	718	724	730		
672	737	743	750	756	763	769	776	782	789	795		
673	802	808	814	821	827	834	840	847	853	860		
674	866	872	879	885	892	898	905	911	918	924		
675	930	937	943	950	956	963	969	975	982	988		
676	995	*001	*008	*014	*020	*027	*033	*040	*046	*052		
677	83 059	065	072	078	085	091	097	104	110	117		
678	123	129	136	142	149	155	161	168	174	181		
679	187	193	200	206	213	219	225	232	238	245		
680	251	257	264	270	276	283	289	296	302	308		
681	315	321	327	334	340	347	353	359	366	372	6	6
682	378	385	391	398	404	410	417	423	429	436	1	1
683	442	448	455	461	467	474	480	481	493	499	2	1
684	506	512	518	525	531	537	544	550	556	563	3	2
685	569	575	582	588	594	601	607	613	620	626	4	2
686	632	639	645	651	658	664	670	677	683	689	5	3
687	696	702	708	715	721	727	734	740	746	753	6	4
688	759	765	771	778	784	790	797	803	809	816	7	4
689	822	828	835	841	847	853	860	866	872	879	8	5
690	885	891	897	904	910	916	923	929	935	942	9	5
691	948	954	960	967	973	979	985	992	998	*004		
692	84 011	017	023	029	036	042	048	055	061	067		
693	073	080	086	092	098	105	111	117	123	130		
694	136	142	148	155	161	167	173	180	186	192		
695	198	205	211	217	223	230	236	242	248	255		
696	261	267	273	280	286	292	298	305	311	317		
697	323	330	336	342	348	354	361	367	373	379		
698	386	392	398	404	410	417	423	429	435	442		
699	448	454	460	466	473	479	485	491	497	504		
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700	84 510	516	522	528	535	541	547	553	559	566		
701	572	578	584	590	597	603	609	615	621	628		
702	634	640	646	652	658	665	671	677	683	689		
703	696	702	708	714	720	726	733	739	745	751		
704	757	763	770	776	782	788	794	800	807	813		
705	819	825	831	837	844	850	856	862	868	874		7
706	880	887	893	899	905	911	917	924	930	936		
707	942	948	954	960	967	973	979	985	991	997		
708	85 003	009	016	022	028	034	040	046	052	058		
709	065	071	077	083	089	095	101	107	114	120		
710	126	132	138	144	150	156	163	169	175	181	1	1
711	187	193	199	205	211	217	224	230	236	242	2	1
712	248	254	260	266	272	278	285	291	297	303	3	2
713	309	315	321	327	333	339	345	352	358	364	4	3
714	370	376	382	388	394	400	406	412	418	425	5	4
715	431	437	443	449	455	461	467	473	479	485	6	4
716	491	497	503	509	516	522	528	534	540	546	7	5
717	552	558	564	570	576	582	588	594	600	606	8	6
718	612	618	625	631	637	643	649	655	661	667	9	6
719	673	679	685	691	697	703	709	715	721	727		
720	733	739	745	751	757	763	769	775	781	788		6
721	794	800	806	812	818	824	830	836	842	848		
722	854	860	866	872	878	884	890	896	902	908		
723	914	920	926	932	938	944	950	956	962	968		
724	974	980	986	992	998	*004	*010	*016	*022	*028		
725	86 034	040	046	052	058	064	070	076	082	088	1	1
726	094	100	106	112	118	124	130	136	141	147	2	1
727	153	159	165	171	177	183	189	195	201	207	3	2
728	213	219	225	231	237	243	249	255	261	267	4	2
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731	392	398	404	410	415	421	427	433	439	445	7	4
732	451	457	463	469	475	481	487	493	499	504	8	5
733	510	516	522	528	534	540	546	552	558	564	9	5
734	570	576	581	587	593	599	605	611	617	623		
735	629	635	641	646	652	658	664	670	676	682		5
736	688	694	700	705	711	717	723	729	735	741		
737	747	753	759	764	770	776	782	788	794	800		
738	806	812	817	823	829	835	841	847	853	859		
739	864	870	876	882	888	894	900	906	911	917		
740	923	929	935	941	947	953	958	964	970	976	1	1
741	982	988	994	999	*005	*011	*017	*023	*029	*035	2	1
742	87 040	046	052	058	064	070	075	081	087	093	3	2
743	099	105	111	116	122	128	134	140	146	151	4	2
744	157	163	169	175	181	186	192	198	204	210	5	3
745	216	221	227	233	239	245	251	256	262	268	6	3
746	274	280	286	291	297	303	309	315	320	326	7	4
747	332	338	344	349	355	361	367	373	379	384	8	4
748	390	396	402	408	413	419	425	431	437	442	9	5
749	448	454	460	466	471	477	483	489	495	500		
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751	564	570	576	581	587	593	599	604	610	616		
752	622	628	633	639	645	651	656	662	668	674		
753	679	685	691	697	703	708	714	720	726	731		
754	737	743	749	754	760	766	772	777	783	789		
755	795	800	806	812	818	823	829	835	841	846		
756	852	858	864	869	875	881	887	892	898	904		
757	910	915	921	927	933	938	944	950	955	961		
758	967	973	978	984	990	996	*001	*007	*013	*018		
759	88 024	030	036	041	047	053	058	064	070	076		
760	081	087	093	098	104	110	116	121	127	133		
761	138	144	150	156	161	167	173	178	184	190	1 2 3 4 5 6 7 8 9	6
762	195	201	207	213	218	224	230	235	241	247		1
763	252	258	264	270	275	281	287	292	298	304		1
764	309	315	321	326	332	338	343	349	355	360		2
765	366	372	377	383	389	395	400	406	412	417		2
766	423	429	434	440	446	451	457	463	468	474	5 6 7 8 9	3
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768	536	542	547	553	559	564	570	576	581	587		4
769	593	598	604	610	615	621	627	632	638	643		5
770	649	655	660	666	672	677	683	689	694	700		5
771	705	711	717	722	728	734	739	745	750	756		
772	762	767	773	779	784	790	795	801	807	812		
773	818	824	829	835	840	846	852	857	863	868		
774	874	880	885	891	897	902	908	913	919	925		
775	930	936	941	947	953	958	964	969	975	981		
776	986	992	997	*003	*009	*014	*020	*025	*031	*037		
777	89 042	048	053	059	064	070	076	081	087	092		
778	098	104	109	115	120	126	131	137	143	148		
779	154	159	165	170	176	182	187	193	198	204		
780	209	215	221	226	232	237	243	248	254	260		
781	265	271	276	282	287	293	298	304	310	315	1 2 3 4 5 6 7 8 9	5
782	321	326	332	337	343	348	354	360	365	371		1
783	376	382	387	393	398	404	409	415	421	426		1
784	432	437	443	448	454	459	465	470	476	481		2
785	487	492	498	504	509	515	520	526	531	537		2
786	542	548	553	559	564	570	575	581	586	592	6 7 8 9	3
787	597	603	609	614	620	625	631	636	642	647		3
788	653	658	664	669	675	680	686	691	697	702		4
789	708	713	719	724	730	735	741	746	752	757		4
790	763	768	774	779	785	790	796	801	807	812		5
791	818	823	829	834	840	845	851	856	862	867		
792	873	878	883	889	894	900	905	911	916	922		
793	927	933	938	944	949	955	960	966	971	977		
794	982	988	993	998	*004	*009	*015	*020	*026	*031		
795	90 037	042	048	053	059	064	069	075	080	086		
796	091	097	102	108	113	119	124	129	135	140		
797	146	151	157	162	168	173	179	184	189	195		
798	200	206	211	217	222	227	233	238	244	249		
799	255	260	266	271	276	282	287	293	298	304		
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800	90 309	314	320	325	331	336	342	347	352	358		
801	363	369	374	380	385	390	396	401	407	412		
802	417	423	428	434	439	445	450	455	461	466		
803	472	477	482	488	493	499	504	509	515	520		
804	526	531	536	542	547	553	558	563	569	574		
805	580	585	590	596	601	607	612	617	623	628		
806	634	639	644	650	655	660	666	671	677	682		
807	687	693	698	703	709	714	720	725	730	736		
808	741	747	752	757	763	768	773	779	784	789		
809	795	800	806	811	816	822	827	832	838	843		
810	849	854	859	865	870	875	881	886	891	897		
811	902	907	913	918	924	929	934	940	945	950		
812	956	961	966	972	977	982	988	993	998	*004	1	6
813	91 009	014	020	025	030	036	041	046	052	057	2	1
814	062	068	073	078	084	089	094	100	105	110	3	2
815	116	121	126	132	137	142	148	153	158	164	4	2
816	169	174	180	185	190	196	201	206	212	217	5	3
817	222	228	233	238	243	249	254	259	265	270	6	4
818	275	281	286	291	297	302	307	312	318	323	7	4
819	328	334	339	344	350	355	360	365	371	376	8	5
820	381	387	392	397	403	408	413	418	424	429	9	5
821	434	440	445	450	455	461	466	471	477	482		
822	487	492	498	503	508	514	519	524	529	535		
823	540	545	551	556	561	566	572	577	582	587		
824	593	598	603	609	614	619	624	630	635	640		
825	645	651	656	661	666	672	677	682	687	693		
826	698	703	709	714	719	724	730	735	740	745		
827	751	756	761	766	772	777	782	787	793	798		
828	803	808	814	819	824	829	834	840	845	850		
829	855	861	866	871	876	882	887	892	897	903		
830	908	913	918	924	929	934	939	944	950	955		
831	960	965	971	976	981	986	991	997	*002	*007		
832	92 012	018	023	028	033	038	044	049	054	059	1	5
833	065	070	075	080	085	091	096	101	106	111	2	1
834	117	122	127	132	137	143	148	153	158	163	3	2
835	169	174	179	184	189	195	200	205	210	215	4	2
836	221	226	231	236	241	247	252	257	262	267	5	3
837	273	278	283	288	293	298	304	309	314	319	6	3
838	324	330	335	340	345	350	355	361	366	371	7	4
839	376	381	387	392	397	402	407	412	418	423	8	4
840	428	433	438	443	449	454	459	464	469	474	9	5
841	480	485	490	495	500	505	511	516	521	526		
842	531	536	542	547	552	557	562	567	572	578		
843	583	588	593	598	603	609	614	619	624	629		
844	634	639	645	650	655	660	665	670	675	681		
845	686	691	696	701	706	711	716	722	727	732		
846	737	742	747	752	758	763	768	773	778	783		
847	788	793	799	804	809	814	819	824	829	834		
848	840	845	850	855	860	865	870	875	881	886		
849	891	896	901	906	911	916	921	927	932	937		
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851	993	998	*003	*008	*013	*018	*024	*029	*034	*039		
852	93 044	049	054	059	064	069	075	080	085	090		
853	095	100	105	110	115	120	125	131	136	141		
854	146	151	156	161	166	171	176	181	186	192		
855	197	202	207	212	217	222	227	232	237	242		
856	247	252	258	263	268	273	278	283	288	293		
857	298	303	308	313	318	323	328	334	339	344	1	1
858	349	354	359	364	369	374	379	384	389	394	2	1
859	399	404	409	414	420	425	430	435	440	445	3	2
860	450	455	460	465	470	475	480	485	490	495	4	2
861	500	505	510	515	520	526	531	536	541	546	5	3
862	551	556	561	566	571	576	581	586	591	596	6	4
863	601	606	611	616	621	626	631	636	641	646	7	4
864	651	656	661	666	671	676	682	687	692	697	8	5
865	702	707	712	717	722	727	732	737	742	747	9	5
866	752	757	762	767	772	777	782	787	792	797		
867	802	807	812	817	822	827	832	837	842	847		
868	852	857	862	867	872	877	882	887	892	897		
869	902	907	912	917	922	927	932	937	942	947		
870	952	957	962	967	972	977	982	987	992	997		
871	94 002	007	012	017	022	027	032	037	042	047		
872	052	057	062	067	072	077	082	086	091	096	1	1
873	101	106	111	116	121	126	131	136	141	146	2	1
874	151	156	161	166	171	176	181	186	191	196	3	2
875	201	206	211	216	221	226	231	236	240	245	4	2
876	250	255	260	265	270	275	280	285	290	295	5	3
877	300	305	310	315	320	325	330	335	340	345	6	3
878	349	354	359	364	369	374	379	384	389	394	7	4
879	399	404	409	414	419	424	429	433	438	443	8	4
880	448	453	458	463	468	473	478	483	488	493	9	5
881	498	503	507	512	517	522	527	532	537	542		
882	547	552	557	562	567	571	576	581	586	591		
883	596	601	606	611	616	621	626	630	635	640		
884	645	650	655	660	665	670	675	680	685	689		
885	694	699	704	709	714	719	724	729	734	738		
886	743	748	753	758	763	768	773	778	783	787		
887	792	797	802	807	812	817	822	827	832	836	4	
888	841	846	851	856	861	866	871	876	880	885	1	0
889	890	895	900	905	910	915	919	924	929	934	2	1
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891	988	993	998	*002	*007	*012	*017	*022	*027	*032	4	2
892	95 036	041	046	051	056	061	066	071	075	080	5	2
893	085	090	095	100	105	109	114	119	124	129	6	2
894	134	139	143	148	153	158	163	168	173	177	7	3
895	182	187	192	197	202	207	211	216	221	226	8	3
896	231	236	240	245	250	255	260	265	270	274	9	4
897	279	284	289	294	299	303	308	313	318	323		
898	328	332	337	342	347	352	357	361	366	371		
899	376	381	386	390	395	400	405	410	415	419		
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901	472	477	482	487	492	497	501	506	511	516		
902	521	525	530	535	540	545	550	554	559	564		
903	569	574	578	583	588	593	598	602	607	612		
904	617	622	626	631	636	641	646	650	655	660		
905	665	670	674	679	684	689	694	698	703	708		
906	713	718	722	727	732	737	742	746	751	756		
907	761	766	770	775	780	785	789	794	799	804		
908	809	813	818	823	828	832	837	842	847	852		
909	856	861	866	871	875	880	885	890	895	899		
910	904	909	914	918	923	928	933	938	942	947		
911	952	957	961	966	971	976	980	985	990	995		
912	999	*004	*009	*014	*019	*023	*028	*033	*038	*042	1	5
913	96 047	052	057	061	066	071	076	080	085	090	2	1
914	095	099	104	109	114	118	123	128	133	137	3	2
915	142	147	152	156	161	166	171	175	180	185	4	2
916	190	194	199	204	209	213	218	223	227	232	5	3
917	237	242	246	251	256	261	265	270	275	280	6	3
918	284	289	294	298	303	308	313	317	322	327	7	4
919	332	336	341	346	350	355	360	365	369	374	8	4
920	379	384	388	393	398	402	407	412	417	421	9	5
921	426	431	435	440	445	450	454	459	464	468		
922	473	478	483	487	492	497	501	506	511	515		
923	520	525	530	534	539	544	548	553	558	562		
924	567	572	577	581	586	591	595	600	605	609		
925	614	619	624	628	633	638	642	647	652	656		
926	661	666	670	675	680	685	689	694	699	703		
927	708	713	717	722	727	731	736	741	745	750		
928	755	759	764	769	774	778	783	788	792	797		
929	802	806	811	816	820	825	830	834	839	844		
930	848	853	858	862	867	872	876	881	886	890		
931	895	900	904	909	914	918	923	928	932	937		
932	942	946	951	956	960	965	970	974	979	984	1	4
933	988	993	997	*002	*007	*011	*016	*021	*025	*030	2	0
934	97 035	039	044	049	053	058	063	067	072	077	3	1
935	081	086	090	095	100	104	109	114	118	123	4	2
936	128	132	137	142	146	151	155	160	165	169	5	2
937	174	179	183	188	192	197	202	206	211	216	6	2
938	220	225	230	234	239	243	248	253	257	262	7	3
939	267	271	276	280	285	290	294	299	304	308	8	3
940	313	317	322	327	331	336	340	345	350	354	9	4
941	359	364	368	373	377	382	387	391	396	400		
942	405	410	414	419	424	428	433	437	442	447		
943	451	456	460	465	470	474	479	483	488	493		
944	497	502	506	511	516	520	525	529	534	539		
945	543	548	552	557	562	566	571	575	580	585		
946	589	594	598	603	607	612	617	621	626	630		
947	635	640	644	649	653	658	663	667	672	676		
948	681	685	690	695	699	704	708	713	717	722		
949	727	731	736	740	745	749	754	759	763	768		
N.	0	1	2	3	4	5	6	7	8	9	P. P.	

N.	0	1	2	3	4	5	6	7	8	9	P. P.	
950	97 772	777	782	786	791	795	800	804	809	813		
951	818	823	827	832	836	841	845	850	855	859		
952	864	868	873	877	882	886	891	896	900	905		
953	909	914	918	923	928	932	937	941	946	950		
954	955	959	964	968	973	978	982	987	991	996		
955	98 000	005	009	014	019	023	028	032	037	041		
956	046	050	055	059	064	068	073	078	082	087		
957	091	096	100	105	109	114	118	123	127	132		
958	137	141	146	150	155	159	164	168	173	177		
959	182	186	191	195	200	204	209	214	218	223		
960	227	232	236	241	245	250	254	259	263	268		
961	272	277	281	286	290	295	299	304	308	313		
962	318	322	327	331	336	340	345	349	354	358	1	5
963	363	367	372	376	381	385	390	394	399	403	2	1
964	408	412	417	421	426	430	435	439	444	448	3	2
965	453	457	462	466	471	475	480	484	489	493	4	2
966	498	502	507	511	516	520	525	529	534	538	5	3
967	543	547	552	556	561	565	570	574	579	583	6	3
968	588	592	597	601	605	610	614	619	623	628	7	4
969	632	637	641	646	650	655	659	664	668	673	8	4
970	677	682	686	691	695	700	704	709	713	717	9	5
971	722	726	731	735	740	744	749	753	758	762		
972	767	771	776	780	784	789	793	798	802	807		
973	811	816	820	825	829	834	838	843	847	851		
974	856	860	865	869	874	878	883	887	892	896		
975	900	905	909	914	918	923	927	932	936	941		
976	945	949	954	958	963	967	972	976	981	985		
977	989	994	998	*003	*007	*012	*016	*021	*025	*029		
978	99 034	038	043	047	052	056	061	065	069	074		
979	078	083	087	092	096	100	105	109	114	118		
980	123	127	131	136	140	145	149	154	158	162		
981	167	171	176	180	185	189	193	198	202	207		
982	211	216	220	224	229	233	238	242	247	251	1	4
983	255	260	264	269	273	277	282	286	291	295	2	0
984	300	304	308	313	317	322	326	330	335	339	3	1
985	344	348	352	357	361	366	370	374	379	383	4	2
986	388	392	396	401	405	410	414	419	423	427	5	2
987	432	436	441	445	449	454	458	463	467	471	6	2
988	476	480	484	489	493	498	502	506	511	515	7	3
989	520	524	528	533	537	542	546	550	555	559	8	3
990	564	568	572	577	581	585	590	594	599	603	9	4
991	607	612	616	621	625	629	634	638	642	647		
992	651	656	660	664	669	673	677	682	686	691		
993	695	699	704	708	712	717	721	726	730	734		
994	739	743	747	752	756	760	765	769	774	778		
995	782	787	791	795	800	804	808	813	817	822		
996	826	830	835	839	843	848	852	856	861	865		
997	870	874	878	883	887	891	896	900	904	909		
998	913	917	922	926	930	935	939	944	948	952		
999	957	961	965	970	974	978	983	987	991	996		
											4534	
N.	0	1	2	3	4	5	6	7	8	9	P. P.	





**XXV**

**PHYSICAL CONSTANTS OF INORGANIC  
COMPOUNDS**

# XXV. — PHYSICAL CONSTANTS

## MOLECULAR WEIGHT, SPECIFIC GRAVITY, CRYSTALLINE FORM

Number.	Name.	Formula.	Molec- ular. Weight.	Specific Gravity. Water= 1. Air= 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Acetic Acid.....	H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	60.03	1.0607 <sup>4</sup> °	17°
2	Aluminium.....	Al.....	27.1	2.583 <sup>4</sup> °	657°
3	acetate normal....	Al(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub> .....	204.17	.....	decomp.
4	“ basic.....	Al(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> OH.....	162.16	.....	decomp.
5	bromide.....	Al <sub>2</sub> Br <sub>6</sub> .....	533.96	2.54	93°
6	“.....	Al <sub>2</sub> Br <sub>6</sub> .12H <sub>2</sub> O.....	750.15	.....	.....
7	carbide.....	Al <sub>4</sub> C <sub>3</sub> .....	144.40	2.36	.....
8	chlorate.....	Al(ClO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O.....	385.55	.....	decomp.
9	chloride.....	Al <sub>2</sub> Cl <sub>3</sub> .....	266.90	.....	190, 2½ At.
10	“.....	Al <sub>2</sub> Cl <sub>3</sub> .12H <sub>2</sub> O.....	483.09	.....	.....
11	fluoride.....	Al <sub>2</sub> F <sub>6</sub> .....	168.2	3.10	.....
12	“.....	Al <sub>2</sub> F <sub>6</sub> .7H <sub>2</sub> O.....	294.31	.....	4H <sub>2</sub> O, 120
13	hydroxide mono-..	Al <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O.....	120.22	3.43.....	.....
14	“ di-.....	Al <sub>2</sub> O <sub>3</sub> .2H <sub>2</sub> O.....	138.23	.....	.....
15	“ tri-.....	Al <sub>2</sub> O <sub>3</sub> .3H <sub>2</sub> O.....	156.25	2.423	2H <sub>2</sub> O, 300
16	iodide.....	Al <sub>2</sub> I <sub>6</sub> .....	816.02	2.63	185°
17	“.....	Al <sub>2</sub> I <sub>6</sub> .12H <sub>2</sub> O.....	1032.2	.....	.....
18	nitride.....	Al <sub>2</sub> N <sub>2</sub> .....	82.28	.....	.....
19	nitrate.....	Al(NO <sub>3</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	375.36	.....	73°
20	oxide.....	Al <sub>2</sub> O <sub>3</sub> .....	102.2	3.73–3.99	white heat
21	phosphate.....	AlPO <sub>4</sub> .....	122.1	2.59	infusible
22	potassium tartrate	KAl(C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> ) <sub>2</sub> .....	362.30	.....	.....
23	sodium chloride...	Al <sub>2</sub> Cl <sub>6</sub> .2NaCl.....	383.90	.....	185°
24	“ fluoride....	Al <sub>2</sub> F <sub>6</sub> .6NaF.....	420.5	2.9–3.08	.....

The following abbreviations have been used in this table:—a.=acids; al.=alcohol; alk.=alkalies; aq. r.=aqua regia; dec. or decomp.=decomposes; deliques.=deliquescent; expl.=explodes; gr.=green; hexag.=hexagonal; insol.=insoluble; monocl.=monoclinic; reg.=regular; rhomb.=rhombic; s.=slightly; sol.=soluble; tetrag.=tetragonal; trimet.=trimetric; v.=very; ∞=soluble in all proportions; 4H<sub>2</sub>O, 120° indicates that 4 molecules of water are given off at 120°. The symbols of the common acids HCl, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, usually designate dilute solutions of these acids. The same rule applies to the

OF INORGANIC COMPOUNDS

SOLUBILITY, MELTING AND BOILING POINT,  
AND COLOR

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	118°	∞	∞	∞ sol. alcohol.....	.....
2	1470–1700°	insoluble	decomp.	sol. HCl, H <sub>2</sub> SO <sub>4</sub> , alk.; s. sol. NHO <sub>3</sub>	octahedral.....
3	.....	soluble	decomp.	.....	.....
4	.....	insoluble	.....	sol. a.; insol. NH <sub>4</sub> salts.	amorphous ....
5	263.3°747mm	soluble	.....	sol. CS <sub>2</sub> , alcohol.....	.....
6	.....	soluble	soluble	sol. CS <sub>2</sub> , alcohol.....	.....
7	.....	dec.giv.CH <sub>4</sub>	.....	soluble acids.....	yellow hexag...
8	.....	v. soluble	v. soluble	.....[CS <sub>2</sub>	rhombohedral..
9	182.7°752mm	.....	.....	sol. CHCl <sub>3</sub> , CCl <sub>4</sub> , ether,	.....
10	.....	40	v. soluble	sol. ether; 50, alcohol..	.....
11	.....	soluble	soluble	.....	.....
12	6H <sub>2</sub> O, 250°	insoluble	s. soluble	.....	.....
13	.....	insoluble	insoluble	insol. acids, alkalies....	trimetric.....
14	.....	insoluble	insoluble	insol. acids, alkalies ...	amorphous.....
15	.....	insoluble	insoluble	soluble acids, alkalies ..	hexagonal.....
16	360°	.....	.....	.....	.....
17	.....	v. soluble	v. soluble	soluble alcohol, CS <sub>2</sub> ....	.....
18	.....	slowly dec.	.....	soluble alkalies.....	yellow crystals
19	dec. 134°	v. soluble	.....	sol. alk., 100 alcohol...	rhombic .....
20	.....	insoluble	insoluble	sol. conc. H <sub>2</sub> SO <sub>4</sub> , HCl, alk.	rhombohedral .
21	.....	insoluble	insoluble	soluble a., alk.; insoluble H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	amorphous ....
22	.....	soluble	soluble	.....	.....
23	white heat	soluble	soluble	.....	.....
24	.....	s. soluble	.....	insoluble HCl.....	.....

symbols of other substances usually employed in solution. Alcohol usually designates the ordinary 95% strength. The small figures after specific gravities indicate the temperature at which the specific gravity was taken, the upper figure being the temperature of the substance and the lower figure that of the water. When no temperature is given 15° may be assumed. The color of white or colorless compounds is omitted in the last column.

> = greater than.                      < = less than.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
1	Aluminium, sulphate	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	342.38	2.71	.....
2	sulphate.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O....	666.67	1.62	decomp.
3	sulphide.....	Al <sub>2</sub> S <sub>3</sub> .....	150.38	2.37	.....
4	Alum, ammonium...	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	906.97	1.645 <sup>40</sup>	94.5°
5	ammonium chrom.	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	956.97	1.719	.....
6	ammonium iron...	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . .24H <sub>2</sub> O.....	964.57	1.712	.....
7	cæsium.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .Cs <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	1136.6	2.0215 <sup>00</sup>	105–106°
8	potassium.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .K <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	949.10	1.7571 <sup>40</sup>	84.5°
9	potassium chrom..	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .K <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	999.12	1.81278 <sup>00</sup>	89°
10	potassium iron....	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .K <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	1006.7	1.806	.....
11	potassium manga- nese.....	Mn <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .K <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	1004.9	.....	.....
12	rhubidium.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .Rb <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	1041.6	1.87	99°
13	sodium.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .Na <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	916.92	1.675 <sup>40</sup>	61°
14	thallium.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .Tl <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	1279.0	2.32	.....
15	Ammonia.....	NH <sub>3</sub> .....	17.06	{ 0.5971A 0.6234 <sup>00</sup> l <sub>q</sub>	–77.05°
16	Ammonium acetate.	NH <sub>4</sub> C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	77.10	.....	89°
17	antimonate.....	NH <sub>4</sub> SbO <sub>3</sub> .2H <sub>2</sub> O....	222.30	.....	decomp.
18	auricyanide.....	Au(CN) <sub>3</sub> .NH <sub>4</sub> CN. H <sub>2</sub> O	337.45	.....	decomp. 200°
19	aurocyanide.....	AuCN.NH <sub>4</sub> CN.....	267.35	.....	decomp. 150–200°
20	arsenate.....	(NH <sub>4</sub> ) <sub>3</sub> AsO <sub>4</sub> .3H <sub>2</sub> O...	247.26	.....	.....
21	arsenite.....	NH <sub>4</sub> AsO <sub>2</sub> .....	125.07	.....	.....
22	borofluoride.....	NH <sub>4</sub> BF <sub>4</sub> .....	105.07	1.85117°	.....
23	bromide.....	NH <sub>4</sub> Br.....	98.03	2.327 <sup>40</sup>	sublimes
24	bromoplatinate....	(NH <sub>4</sub> )PtBr <sub>6</sub> ...[NH <sub>2</sub>	710.70	4.2	decomp.
25	carbamate.....	NH <sub>4</sub> HCO <sub>3</sub> .NH <sub>4</sub> CO <sub>2</sub> .	157.21	.....	sublimes
26	carbonate.....	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .H <sub>2</sub> O....	114.16	.....	dec. 85°
27	“        acid....	NH <sub>4</sub> HCO <sub>3</sub> .....	79.08	1.586	dec.36–60°

Number.	Boiling Point, °C	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	36.1 <sup>20°</sup>	89.1 <sup>100°</sup>	.....	.....
2	.....	87	1132 <sup>100°</sup>	insoluble alcohol.....	octahedral....
3	.....	decomp.	.....	sol. a.....	yellow crystals
4	23H <sub>2</sub> O, 190°	5.2°	422 <sup>100°</sup>	insoluble alcohol.....	regular.....
5	.....	15 <sup>15°</sup>	soluble	soluble alcohol.....	{ vio. or green regular.
6	.....	40 <sup>15°</sup>	400	insoluble alcohol.....	regular.....
7	.....	0.3°	8.5 <sup>80°</sup>	.....	.....
8	23H <sub>2</sub> O, 190°	3.9°	357 <sup>100°</sup>	.....	regular.....
9	.....	20	50	insoluble alcohol.....	green regular .
10	.....	20	v. soluble..	insoluble alcohol.....	violet regular .
11	.....	decomp.	soluble....	.....	violet regular .
12	.....	1.3°	32 <sup>80°</sup>	.....	.....
13	.....	107.1 <sup>10.6°</sup>	v. soluble	insoluble alcohol.....	regular.....
14	.....	.....	.....	.....	.....
15	-38.5°	104960c.c. <sup>0°</sup>	72722c.c. <sup>15°</sup>	soluble alcohol, ether...	crystals.....
16	-38.5°	89.9°	57.8 <sup>16°</sup>	.....	.....
17	.....	148 <sup>4°</sup>	.....	.....	.....
18	.....	insoluble	.....	.....	crystalline....
19	.....	soluble.....	v. soluble	insoluble alcohol.....	plates.....
20	.....	soluble	.....	soluble alkalies.....	.....
21	.....	v. soluble	.....	soluble alkalies.....	prisms.....
22	.....	soluble	.....	.....	hexag. prisms
23	.....	66.2 <sup>18°</sup>	128.2	soluble alcohol, ether...	regular.....
24	.....	0.59 <sup>20°</sup>	.....	.....	red regular...
25	.....	25 <sup>15°</sup>	67 <sup>65°</sup>	.....	.....
26	.....	decomp.	.....	insoluble alcohol.....	plates.....
27	.....	11.9°	27 <sup>30°</sup>	insoluble alcohol.....	rhombic or monoclinic

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Ammonium carbonate, sesqui. ....	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> . 2NH <sub>4</sub> HCO <sub>3</sub> .H <sub>2</sub> O..	272.32	.....	decomp.
2	citrate. ....	(NH <sub>4</sub> ) <sub>3</sub> C <sub>6</sub> H <sub>5</sub> O <sub>7</sub> .....	243.26	.....	.....
3	chloraurate. ....	(NH <sub>4</sub> AuCl <sub>4</sub> ) <sub>4</sub> .5H <sub>2</sub> O..	447.15	.....	5H <sub>2</sub> O, 100
4	chlorate. ....	NH <sub>4</sub> ClO <sub>3</sub> .....	101.52	.....	expl. 102°
5	chloride. ....	NH <sub>4</sub> Cl.....	53.52	1.520 <sup>17°</sup>	.....
6	chloroiridate. ....	(NH <sub>4</sub> ) <sub>2</sub> IrCl <sub>6</sub> .....	441.84	2.856	.....
7	chloropalladate. ....	(NH <sub>4</sub> ) <sub>2</sub> PdCl <sub>6</sub> .....	355.34	2.418	decomp.
8	chloropalladite. ....	(NH <sub>4</sub> ) <sub>2</sub> PdCl <sub>4</sub> .....	284.44	.....	decomp.
9	chloroplatinate. ....	(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> .....	443.64	2.94–3.06	decomp.
10	chloroplatinite. ....	(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>4</sub> .....	372.74	.....	decomp.
11	chlorostannate. ....	(NH <sub>4</sub> ) <sub>2</sub> SnCl <sub>6</sub> .....	367.84	2.511	.....
12	chromate. ....	(NH <sub>4</sub> ) <sub>2</sub> CrO <sub>4</sub> .....	152.24	1.886 <sup>11°</sup>	decomp.
13	cyanate. ....	NH <sub>4</sub> CNO.....	60.11	.....	decomp.
14	cyanide. ....	NH <sub>4</sub> CN.....	44.11	.....	dec. 36°
15	dichromate. ....	(NH <sub>4</sub> ) <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	252.34	2.153	decomp.
16	dithionate. ....	(NH <sub>4</sub> ) <sub>2</sub> S <sub>2</sub> O <sub>6</sub> .....	196.26	1.704	.....
17	ferric oxalate. ....	(NH <sub>4</sub> ) <sub>3</sub> Fe(C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> . 4H <sub>2</sub> O.....	446.18	1.7785 <sup>17.5°</sup>	3H <sub>2</sub> O, 100°
18	ferrocyanide. ....	(NH <sub>4</sub> ) <sub>4</sub> Fe(CN) <sub>6</sub> . 6H <sub>2</sub> O.....	262.32	.....	.....
19	fluoride. ....	NH <sub>4</sub> F.....	37.07	.....	.....
20	“ acid. ....	NH <sub>4</sub> F.HF.....	57.08	1.211 <sup>14°</sup>	.....
21	formate. ....	NH <sub>4</sub> CHO <sub>2</sub> .....	63.08	1.266	decomp.
22	gallate. ....	NH <sub>4</sub> C <sub>7</sub> O <sub>5</sub> O <sub>8</sub> .H <sub>2</sub> O..	205.13	.....	.....
23	hypophosphite. ....	NH <sub>4</sub> H <sub>2</sub> PO <sub>2</sub> .....	83.09	.....	100°
24	iodate. ....	NH <sub>4</sub> IO <sub>3</sub> .....	193.04	3.31–3.34	dec. 150°
25	iodide. ....	NH <sub>4</sub> I.....	145.04	2.501	sublimes
26	metavanadate. ....	NH <sub>4</sub> VO <sub>3</sub> .....	69.27	.....	decomp.
27	molybdate. ....	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	196.14	2.38–2.95	decomp.
28	“ hepta-. ..	(NH <sub>4</sub> ) <sub>6</sub> Mo <sub>7</sub> O <sub>24</sub> .4H <sub>2</sub> O..	1236.5	.....	.....
29	nitrate. ....	NH <sub>4</sub> NO <sub>3</sub> .....	80.11	1.725 <sup>15°</sup>	153°–166°
30	nitrite. ....	NH <sub>4</sub> NO <sub>2</sub> .....	64.11	1.69	decomp.
31	oxalate. ....	(NH <sub>4</sub> ) <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O..	142.16	1.502	.....
32	“ acid. ....	NH <sub>4</sub> HC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O..	125.10	1.556	.....
33	perchlorate. ....	NH <sub>4</sub> ClO <sub>4</sub> .....	117.52	1.87	decomp.
34	perchromate. ....	(NH <sub>4</sub> ) <sub>3</sub> CrO <sub>8</sub> .....	234.32	.....	dec. 50°
35	permanganate. ....	NH <sub>4</sub> MnO <sub>4</sub> .....	137.07	2.2076 <sup>10.25°</sup>	decomp.
36	persulphate. ....	(NH <sub>4</sub> ) <sub>2</sub> S <sub>2</sub> O <sub>8</sub> .....	228.26	.....	decomp.
37	phosphate di-. ....	(NH <sub>4</sub> ) <sub>2</sub> HPO <sub>4</sub> .....	132.15	1.619	.....
38	“ mono-. ..	NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub> .....	115.09	1.803 <sup>4°</sup>	.....

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a), Alkalies (alk.), etc.	
1	.....	25 <sup>13°</sup>	50 <sup>49°</sup>	.....	.....
2	.....	deliques.	.....	.....	.....
3	.....	soluble	.....	soluble alcohol	yellow monocl.
4	.....	soluble	.....	soluble alcohol	monoclinic
5	.....	28.4 <sup>0°</sup>	73 <sup>100°</sup>	soluble alcohol	reg. or tetrag.
6	.....	5. ....	.....	.....	reddish-brown
7	.....	soluble	.....	.....	bright red
8	.....	v. soluble	.....	insoluble alcohol	olive gr. needles
9	.....	0.67 <sup>20°</sup>	1.25 <sup>100°</sup>	0.005 alcohol	yellow regular
10	.....	soluble	v. soluble.	.....	tetragonal
11	.....	33.33 <sup>15°</sup>	.....	.....	.....
12	.....	40 <sup>30°</sup>	decomp.	.....	yellow monocl.
13	.....	soluble	decomp.	s. soluble alcohol	.....
14	.....	soluble	v. soluble	soluble alcohol	regular
15	.....	47.1 <sup>30°</sup>	v. soluble	.....	orange monocl.
16	.....	v. soluble	.....	insoluble alcohol	monoclinic
17	dec. 165°	42.8 <sup>0°</sup>	345 <sup>100°</sup>	.....	light green crys.
18	.....	soluble	.....	insoluble alcohol	monoclinic
19	.....	v. soluble	decomp.	s. soluble alcohol	hexagonal
20	.....	v. soluble	.....	.....	rhombic
21	.....	soluble	.....	.....	monoclinic
22	.....	soluble	.....	.....	.....
23	.....	soluble	soluble	v. soluble alcohol	rhombic tablets
24	.....	2.6 <sup>15°</sup>	14.5 <sup>100°</sup>	.....	rhombic
25	.....	v. soluble	v. soluble	v. soluble alcohol	regular
26	.....	s. soluble	v. soluble	insol. NH <sub>4</sub> Cl	crystalline
27	.....	decomposes	decomp.	insoluble alcohol	monoclinic
28	.....	soluble	.....	.....	monoclinic
29	dec. 210°	200 <sup>18°</sup>	v. soluble	v. soluble alcohol	rh'b. or tetrag.
30	.....	soluble	decomp.	soluble alcohol	.....
31	.....	4.2 <sup>15°</sup>	41.34	.....	trimet. prisms
32	.....	soluble	.....	.....	trimet. prisms
33	.....	soluble	v. soluble	.....	rhombic
34	.....	s. soluble	.....	s. sol. NH <sub>3</sub> ; insol. al., ether	red octahedral
35	.....	v. soluble	.....	.....	rhombic
36	.....	58.2 <sup>0°</sup>	.....	.....	monoclinic
37	.....	25	decomp.	insoluble alcohol	monoclinic
38	.....	soluble	.....	.....	tetragonal

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water= 1. Air= 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Ammonium</b>					
1	phosphate meta-...	(NH <sub>4</sub> ) <sub>4</sub> P <sub>4</sub> O <sub>12</sub> .....	388.29	.....	.....
2	phosphite.....	NH <sub>4</sub> H <sub>2</sub> PO <sub>3</sub> .....	99.09	.....	123°
3	phosphomolybdate	(NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub> .12MoO <sub>3</sub> . 3H <sub>2</sub> O.....	1931.3	.....	.....
4	salicylate.....	NH <sub>4</sub> C <sub>7</sub> H <sub>5</sub> O <sub>3</sub> .....	155.11	.....	.....
5	selenate.....	(NH <sub>4</sub> ) <sub>2</sub> SeO <sub>4</sub> .....	179.34	2.197 <sup>18°</sup>	decomp.
6	stannic chloride...	(NH <sub>4</sub> ) <sub>2</sub> SnCl <sub>6</sub> .....	367.84	2.511	.....
7	sulphate.....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	132.20	1.7687 <sup>12°</sup>	140°
8	“ acid.....	NH <sub>4</sub> HSO <sub>4</sub> .....	115.14	1.787	.....
9	sulphite.....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>3</sub> .H <sub>2</sub> O.....	134.22	.....	decomp.
10	sulphite acid.....	NH <sub>4</sub> HSO <sub>3</sub> .....	99.14	.....	decomp.
11	sulphide.....	(NH <sub>4</sub> ) <sub>2</sub> S.....	68.20	.....	decomp.
12	“ penta-....	(NH <sub>4</sub> ) <sub>2</sub> S <sub>5</sub> .....	196.44	.....	.....
13	sulphydrate.....	NH <sub>4</sub> HS.....	51.14	.....	decomp.
14	sulphocyanate.....	NH <sub>4</sub> CNS.....	76.17	1.3057 <sup>13°</sup>	159°
15	tartrate.....	(NH <sub>4</sub> ) <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	184.18	1.601	.....
16	“ acid.....	NH <sub>4</sub> HC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	167.11	1.680	.....
17	thiocarbonate.....	(NH <sub>4</sub> ) <sub>2</sub> CS <sub>3</sub> .....	144.32	.....	sublimes
18	thiosulphate.....	(NH <sub>4</sub> ) <sub>2</sub> S <sub>2</sub> O <sub>3</sub> .....	148.26	.....	.....
19	tungstate meta-...	(NH <sub>4</sub> ) <sub>2</sub> W <sub>4</sub> O <sub>13</sub> .8H <sub>2</sub> O..	1124.3	.....	7H <sub>2</sub> O, 100°
20	“ para-....	(NH <sub>4</sub> ) <sub>6</sub> W <sub>7</sub> O <sub>24</sub> .6H <sub>2</sub> O..	1888.5	.....	4H <sub>2</sub> O, 100°
21	Antimonic Acid ...	HSbO <sub>3</sub> .....	169.21	6.6	decomp.
22	“ “ “ pyro-.	H <sub>4</sub> Sb <sub>2</sub> O <sub>7</sub> .....	356.43	.....	H <sub>2</sub> O, 200°
23	Antimonous Acid...	HSbO <sub>2</sub> .....	153.21	.....	decomp.
24	Antimony.....	Sb.....	120.2	6.62	630°
25	bromide.....	SbBr <sub>3</sub> .....	360.10	4.148 <sup>23°</sup>	93°
26	chloride tri-....	SbCl <sub>3</sub> .....	226.55	3.064 <sup>26°</sup>	73.2°
27	“ penta-....	SbCl <sub>5</sub> .....	297.45	2.346 <sup>18°</sup>	-6°
28	fluoride tri-....	SbF <sub>3</sub> .....	177.2	4.379 <sup>20.9°</sup>	292°
29	“ penta-....	SbF <sub>5</sub> .....	215.2	2.990 <sup>22.8°</sup>	.....
30	hydride (stibine) ..	SbH <sub>3</sub> .....	123.22	4.344 <sup>15°A</sup>	-91.5°
31	iodide tri-....	SbI <sub>3</sub> .....	501.11	4.848 <sup>26°</sup>	167°
32	“ “ .....	SbI <sub>3</sub> .....	501.11	.....	167°
33	“ “ .....	SbI <sub>3</sub> .....	501.11	4.768 <sup>22°</sup>	167°
34	oxide tri-....	Sb <sub>2</sub> O <sub>3</sub> .....	288.4	5.2-5.67	red heat
35	“ tetr-....	Sb <sub>2</sub> O <sub>4</sub> .....	304.4	4.07	O, 800°
36	oxide pent-....	Sb <sub>2</sub> O <sub>5</sub> .....	320.40	3.78	O, 300°
37	oxychloride (-ous)	SbOCl.....	171.65	.....	.....
38	“ (-ic) ..	SbOCl <sub>3</sub> .....	242.55	.....	decomp.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.) Acids (a.), Alkalies (alk.), etc.	
1	.....	soluble	.....	.....	tetragonal....
2	dec. 150°	soluble	.....	.....	.....
3	.....	insoluble	insoluble	insol. al., HNO <sub>3</sub> ; sol. alk.	yellow.....
4	.....	soluble	.....	.....	monoclinic....
5	.....	soluble	.....	.....	rh'b. or monocl.
6	.....	33	.....	.....	regular.....
7	dec. 280°	71°	97.5	insoluble alcohol.....	rhombic.....
8	.....	100	.....	.....	rhombic.....
9	.....	100 <sup>12°</sup>	.....	insoluble alcohol.....	monoclinic....
10	.....	soluble	.....	.....	rhombic.....
11	.....	v. soluble	.....	.....	.....[prisms
12	.....	soluble	.....	.....	orange red
13	.....	v. soluble...	.....	soluble alcohol.....	rhombic.....
14	dec. 170°	122°	162 <sup>20°</sup>	soluble alcohol.....	.....
15	.....	soluble	.....	.....	monoclinic....
16	.....	s. soluble	.....	insol. al.; sol. a., alk....	.....
17	.....	v. soluble	.....	insol. alcohol, ether....	yellow.....
18	.....	soluble	.....	.....	rhombic.....
19	.....	120	.....	insol. alcohol, ether....	octahedra....
20	.....	2.8 <sup>15°</sup>	4.5 <sup>22°</sup>	.....	rhombic.....
21	.....	s. soluble	s. soluble	soluble acids and KOH	.....
22	.....	s. soluble	s. soluble	soluble KOH.....	.....
23	.....	insoluble	insoluble	insoluble alcohol.....	.....
24	1500–1700°	insoluble	insoluble	sol. hot conc. H <sub>2</sub> SO <sub>4</sub> , aq. r.	hexag. rhomb.
25	280°	decomp.	decomp.	sol. HCl, HBr, CS <sub>2</sub> , al.	rhombic.....
26	223.5°	decomp.	decomp.	sol. al., HCl, H <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub>	rhombic.....
27	102°–103° *	decomp.	decomp.	sol. HCl.....	.....
28	sublimes	soluble	decomp.	.....	octahedral....
29	155°	soluble	.....	soluble KF.....	oily liquid....
30	–18° †	20c.c.	4	1500c.c.al., 2500c.c.CS <sub>2</sub> ..	.....
31	401°	decomp.	decomp.	{ soluble alcohol,.....	red hexagonal
32	401°	decomp.	decomp.	{ HI, HCl.....	yellow rhomb.
33	401°	decomp.	decomp.	{ KI, CS <sub>2</sub> .....	red monoclinic
34	1550°	.00182 <sup>15°</sup>	.01	sol. HCl, KOH, H <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub>	{ trimetric octahedral
35	.....	insoluble	insoluble	sol. hot conc. HCl.....	.....
36	O <sub>2</sub> , 800°	insoluble	insoluble	soluble HCl, KOH, HI.	yellow.....
37	.....	insoluble	decomp.	insol. al.; sol. HCl, CS <sub>2</sub> .	monoclinic....
38	.....	insoluble	decomp.	soluble alcohol.....	yellow.....

\* At 68 mm.

† Decomposes at 150°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
	<b>Antimony</b>				
1	sulphate . . . . .	Sb <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . . . . .	528.38	4.89	decomp.
2	sulphide tri- . . . . .	Sb <sub>2</sub> S <sub>3</sub> . . . . .	336.58	4.652	fusible
3	“ penta- . . . . .	Sb <sub>2</sub> S <sub>5</sub> . . . . .	400.70	4.120°	fusible
	<b>Antimonyl</b>				
4	potassium tartrate.	K(SbO)C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	332.38	2.6	½H <sub>2</sub> O, 100°
5	sulphate basic. . . . .	(SbO) <sub>2</sub> SO <sub>4</sub> .Sb <sub>2</sub> (OH) <sub>4</sub>	676.49	.....	.....
6	Argon . . . . .	A . . . . .	39.9	{ 1.379 A. 19.96 D	— 187.9°
7	Arsenic crystalline. . .	As <sub>4</sub> . . . . .	300	5.727 <sup>14</sup> °	subl. 449½°
8	“ amorphous. . . . .	As <sub>4</sub> . . . . .	300	4.716 <sup>14</sup> °	.....
9	acid . . . . .	H <sub>3</sub> AsO <sub>4</sub> .½H <sub>2</sub> O . . . . .	151.03	2.5	35.5°
10	fluoride . . . . .	AsF <sub>5</sub> . . . . .	170.00	5.964 D	— 80°
11	iodide di- . . . . .	AsI <sub>2</sub> . . . . .	328.94	.....	.....
12	“ penta- . . . . .	AsI <sub>5</sub> . . . . .	709.85	3.93	70°
13	pentoxide . . . . .	As <sub>2</sub> O <sub>5</sub> . . . . .	230.0	3.99–4.25	red heat
14	sulphide di-(realgar)	As <sub>2</sub> S <sub>2</sub> . . . . .	214.12	3.4–3.6	fusible
15	“ penta- . . . . .	As <sub>2</sub> S <sub>5</sub> . . . . .	310.30	.....	v. fusible
16	Arsenous bromide . . .	AsBr <sub>3</sub> . . . . .	314.88	3.66½†	31°
17	chloride . . . . .	AsCl <sub>3</sub> . . . . .	181.35	2.205½	— 18°
18	fluoride . . . . .	AsF <sub>3</sub> . . . . .	132.00	2.73	— 8.5°
19	hydride (arsine)	AsH <sub>3</sub> . . . . .	78.02	2.695 A.	— 113.5°
20	iodide . . . . .	AsI <sub>3</sub> . . . . .	455.91	4.39½†	146°
21	oxide . . . . .	As <sub>4</sub> O <sub>6</sub> . . . . .	396	3.65–4.15	sublimes
22	“ . . . . .	As <sub>4</sub> O <sub>6</sub> . . . . .	396	3.738	200°
23	oxychloride . . . . .	AsOCl . . . . .	126.45	.....	fusible
24	phosphide . . . . .	AsP . . . . .	106.00	.....	.....
25	selenide . . . . .	As <sub>2</sub> Se <sub>3</sub> . . . . .	387.60	4.75	360°
26	sulphide (orpiment)	As <sub>2</sub> S <sub>3</sub> . . . . .	246.18	3.40–3.46	v. fusible
27	Auric bromide . . . . .	AuBr <sub>3</sub> . . . . .	437.08	.....	.....
28	chloride . . . . .	AuCl <sub>3</sub> . . . . .	303.55	.....	288°*
29	“ . . . . .	AuCl <sub>3</sub> .2H <sub>2</sub> O . . . . .	339.58	.....	decomp.
30	cyanide . . . . .	Au(CN) <sub>3</sub> .6H <sub>2</sub> O . . . . .	383.42	.....	.....
31	hydroxide . . . . .	Au(OH) <sub>3</sub> . . . . .	248.22	.....	1½H <sub>2</sub> O, 100
32	iodide . . . . .	AuI <sub>3</sub> . . . . .	578.11	.....	.....
33	hydrogen nitrate . . .	Au(NO <sub>3</sub> ) <sub>3</sub> .HNO <sub>3</sub> . 3H <sub>2</sub> O . . . . .	500.42	2.58	decomp.
34	oxide . . . . .	Au <sub>2</sub> O <sub>3</sub> . . . . .	442.4	.....	0.160°†
35	sulphate . . . . .	Au <sub>2</sub> O <sub>3</sub> .2SO <sub>3</sub> .H <sub>2</sub> O . . . . .	620.54	.....	.....
36	sulphide . . . . .	Au <sub>2</sub> S <sub>3</sub> . . . . .	490.58	.....	.....
37	Auricyanhydric Acid	HAu(CN) <sub>4</sub> .3H <sub>2</sub> O . . . . .	356.42	.....	50°

\* Under a pressure of two atmospheres of Chlorine.      † Loses O<sub>3</sub> at 250°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	decomp.	decomp.	sol. $\text{H}_2\text{SO}_4$ .....	.....
2	volatile	insoluble	decomp.	sol. alk., $\text{NH}_4\text{HS}$ , $\text{K}_2\text{S}$ , $\text{HCl}$	black hexag...
3	.....	insoluble	insoluble	sol. alk., $\text{NH}_4\text{HS}$ , $\text{HCl}$ ..	orange. ....
4	.....	5.26 <sup>8.7°</sup>	35.71 <sup>100°</sup>	insoluble alcohol.....	octahedral....
5	.....	insoluble	decomp.	.....	.....
6	-186.1°	5.6c.c. <sup>1°</sup>	2.57c.c. <sup>50°</sup>	.....	.....
7	.....	insoluble	insoluble	{ sol. $\text{HNO}_3$ , $\text{Cl}_2\cdot\text{H}_2\text{O}$ ...	gray rhomboh.
8	<360°	insoluble	insoluble	{ aq. r., hot alk.....	black amor-
9	$\text{H}_2\text{O}$ , 160°	16.7	50	soluble alkalies.....	.....[phous
10	-53°	soluble	.....	soluble alk., al., ether..	.....
11	.....	.....	.....	sol. al., ether, $\text{CS}_2$ , $\text{CHCl}_3$	dark red prisms
12	.....	decomp.	.....	.....	.....
13	decomp.	150	v. soluble	v. soluble.....	amorphous....
14	.....	insoluble	insoluble	sol. $\text{K}_2\text{S}$ , $\text{NaHCO}_3$ .....	red monoclinic
15	sublimes	insoluble	insoluble	soluble alkalies, $\text{HNO}_3$ ..	yellow.....
16	221°	decomp.	decomp.	soluble $\text{HBr}$ , $\text{HCl}$ .....	prisms.....
17	130.2°	decomp.	decomp.	sol. $\text{HBr}$ , $\text{HCl}$ , al., ether	needles .....
18	63°	decomp.	decomp.	sol. alcohol, ether.....	.....
19	-54.8° †	.....	.....	s. soluble alkalies.....	.....
20	394°-414°	.....	30 <sup>100°</sup>	soluble alcohol, ether ..	red hexagonal.
21	125°-150°	1.7 <sup>16°</sup>	10.14	{ sol. alk.; alk. carbon-	reg. octahedral
22	.....	3.7	11.46	{ ates; $\text{HCl}$ , alcohol	amorphous. ...
23	.....	decomp.	decomp.	.....	.....
24	.....	decomp.	decomp.	sol. $\text{CS}$ ; insol. al., ether	brown.....
25	.....	insoluble.	decomp.	soluble alkalies.....	....[monoclinic
26	>700°	s. soluble	s. soluble	sol. alk.; alk. carbonates	yellow or red
27	.....	soluble	.....	soluble ether.....	dark brown....
28	.....	68	v. soluble	soluble alcohol, ether ..	red brown leaf.
29	.....	soluble	soluble	soluble alcohol.....	orange.....
30	.....	v. soluble	v. soluble	soluble alcohol.....	.....
31	dec. 250°	insoluble	insoluble	soluble conc. $\text{HNO}_3$ ....	yellow brown..
32	.....	insoluble	decomp.	soluble iodides.....	dark green....
33	.....	decomp.	.....	soluble $\text{HNO}_3$ .....	yellow triclinic
					octahedral
34	.....	insoluble	insoluble	soluble $\text{HCl}$ .....	black.....
35	.....	deliques.	decomp.	sol. $\text{HCl}$ , 17 Conc. $\text{H}_2\text{SO}_4$	.....
36	.....	insoluble	.....	sol. $\text{Na}_2\text{S}$ , $\text{K}_2\text{S}$ ; insol. a..	brown.....
37	decomp.	soluble	.....	soluble alcohol, ether ..	tablets.....

† Decomposes at 230°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water= 1. Air= 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Aurichlorohydric Acid	HAuCl <sub>4</sub> .4H <sub>2</sub> O . . . . .	412.07	.....	.....
2	Auroauric bromide...	AuBr <sub>2</sub> .....	357.12	.....	dec. 115°
3	chloride . . . . .	AuCl <sub>2</sub> .....	268.10	.....	dec. 250°
4	oxide . . . . .	Au <sub>2</sub> O . . . . .	410.4	.....	dec. 250°
5	sulphide . . . . .	AuS . . . . .	229.26	.....	dec. 140°
6	Aurobromhydric Acid	HAuBr <sub>4</sub> .5H <sub>2</sub> O . . . . .	608.13	.....	27°
7	Aurous bromide. . . . .	AuBr . . . . .	277.16	.....	dec. 115°
8	chloride . . . . .	AuCl . . . . .	232.65	.....	.....
9	cyanide . . . . .	AuCN . . . . .	223.24	.....	decomp.
10	iodide . . . . .	AuI . . . . .	324.17	.....	dec. 120°
11	oxide . . . . .	Au <sub>2</sub> O . . . . .	410.40	.....	dec. 250°
12	sulphide * . . . . .	Au <sub>2</sub> S . . . . .	426.46	.....	.....
13	Barium . . . . .	Ba . . . . .	137.4	3.78.....	850°
14	acetate . . . . .	Ba(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O . . .	273.46	2.02	decomp.
15	arsenate . . . . .	Ba <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> .....	690.2	.....	.....
16	boride . . . . .	BaB <sub>6</sub> .....	203.4	4.36 <sup>15°</sup>	.....
17	bromate . . . . .	Ba(BrO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	411.34	3.820	decomp.
18	bromide . . . . .	BaBr <sub>2</sub> .....	297.32	4.781 <sup>3‡</sup>	880°
19	" . . . . .	BaBr <sub>2</sub> .2H <sub>2</sub> O . . . . .	333.35	3.852 <sup>3‡</sup>	2H <sub>2</sub> O, 100°
20	carbide . . . . .	BaC <sub>2</sub> .....	161.40	3.75	.....
21	carbonate . . . . .	BaCO <sub>3</sub> .....	197.4	4.275	dec. 1450°
22	chlorate . . . . .	Ba(ClO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	322.32	3.179	414° †
23	chloride . . . . .	BaCl <sub>2</sub> .....	208.3	3.856 <sup>3‡</sup>	960°
24	" . . . . .	BaCl <sub>2</sub> .2H <sub>2</sub> O . . . . .	244.33	3.097 <sup>3‡</sup>	860° †
25	chloroplatinate . . . . .	BaPtCl <sub>6</sub> .4H <sub>2</sub> O . . . . .	616.96	2.86	.....
26	chloroplatinite . . . . .	BaPtCl <sub>4</sub> .3H <sub>2</sub> O . . . . .	528.05	2.868	.....
27	chromate . . . . .	BaCrO <sub>4</sub> .....	253.50	4.498 <sup>15°</sup>	.....
28	cyanide . . . . .	Ba(CN) <sub>2</sub> .....	189.48	.....	.....
29	dichromate . . . . .	BaCr <sub>2</sub> O <sub>7</sub> .....	353.60	.....	.....
30	" . . . . .	BaCr <sub>2</sub> O <sub>7</sub> .2H <sub>2</sub> O . . . . .	389.63	.....	.....
31	dithionate . . . . .	BaS <sub>2</sub> O <sub>6</sub> .2H <sub>2</sub> O . . . . .	333.55	5.6	.....
32	ferrocyanide . . . . .	Ba <sub>2</sub> Fe(CN) <sub>6</sub> .6H <sub>2</sub> O . . .	595.04	.....	.....
33	fluoride . . . . .	BaF <sub>2</sub> .....	175.4	4.828	1280°
34	fluosilicate . . . . .	BaSiF <sub>6</sub> .....	279.80	4.28 <sup>15°</sup>	.....
35	fluobromide . . . . .	BaBr <sub>2</sub> .BaF <sub>2</sub> .....	472.72	4.96	.....
36	fluochloride . . . . .	BaCl <sub>2</sub> .BaF <sub>2</sub> .....	383.7	4.51 <sup>18°</sup>	.....
37	fluiodide . . . . .	BaI <sub>2</sub> .BaF <sub>2</sub> .....	566.74	5.21.....	.....
38	formate . . . . .	Ba(CHO <sub>2</sub> ) <sub>2</sub> .....	227.42	3.212	.....

\* For other compounds see " Gold." † Anhydrous.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (Al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	.....	.....	.....	.....
2	.....	decomp.	.....	.....	black.....
3	.....	decomp.	.....	.....	dark red.....
4	.....	insoluble	insoluble	soluble cold HCl.....	olive brown...
5	.....	insoluble	insoluble	insol. acids; sol. (NH <sub>4</sub> ) <sub>2</sub> S	black.....
6	.....	v. soluble	.....	.....	red crystals...
7	.....	insoluble	.....	decomp. by acid.....	grayish yellow
8	.....	insoluble	decomp.	.....	yellowish white
9	.....	insoluble	insoluble	insol. acids; sol. KCN..	yellow crystals
10	.....	insoluble	s. soluble	sol. excess KI.....	yellow.....
11	.....	s. soluble	insoluble	sol. HI, alkalies.....	violet.....
12	.....	insoluble	.....	insoluble acids.....	black.....
13	vol. 950°	decomp.	decomp.	sol. al., a.; insol. b'z'l, petroleum	silvery crystals
14	.....	62.9.3°	80.599°	insoluble alcohol.....	prisms.....
15	.....	0.055	.....	soluble acids, NH <sub>4</sub> Cl...	.....
16	.....	insoluble	insoluble	soluble HNO <sub>3</sub> .....	black regular..
17	.....	0.7717°	4.2100°	.....	monoclinic....
18	.....	115.8°	184100°	.....	.....
19	.....	130°	204100°	v. soluble alcohol.....	monoclinic....
20	.....	dec. to C <sub>2</sub> H <sub>2</sub>	.....	decomp. by acids.....	gray crystals..
21	.....	0.002220°	0.0065100°	sol. a., NH <sub>4</sub> Cl.....	rhombic.....
22	.....	24.5°	145	.....	monoclinic....
23	.....	30.9°	62.7	{ insol. al.; s. sol. HCl, HNO <sub>3</sub>	.....
24	.....	36.2°	73.5		
25	.....	soluble	.....	decomp. by acids.....	red monoclinic.
26	.....	soluble	.....	v. soluble 93% al.....	..... [plates
27	.....	0.0003818°	insoluble	soluble HCl, HNO <sub>3</sub> ....	yellow rhombic
28	.....	8014°	.....	1814° alcohol.....	.....
29	.....	s. soluble	.....	sol. hot conc. H <sub>2</sub> SO <sub>4</sub> ...	red monocl. pr.
30	.....	decomp.	.....	.....	yellow needles
31	.....	24.7518°	90.9100°	.....	rhombic.....
32	.....	0.115°	175°	.....	yellow monocl.
33	.....	0.16318°	s. soluble	soluble acids, NH <sub>4</sub> Cl. :	crystalline....
34	.....	0.02617°	0.09100°	insol. al.; s. sol. HCl, NH <sub>4</sub> Cl. [HNO <sub>3</sub>	.....
35	.....	decomp.	decomp.	insol. al.; sol. conc. HCl,	plates.....
36	.....	decomp.	decomp.	insol. al.; sol. conc. HCl, HNO <sub>3</sub> [HNO <sub>3</sub>	plates.....
37	.....	decomp.	decomp.	insol. al.; sol. conc. HCl,	plates.....
38	.....	20	.....	insoluble alcohol, ether.	monoclinic....

‡ Loses 2H<sub>2</sub>O at 100°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Barium hexanitride.	BaN <sub>6</sub> .H <sub>2</sub> O . . . . .	239.66	.....	explodes
2	hydride. . . . .	BaH <sub>2</sub> . . . . .	139.42	4.21°	volatile . .
3	hydroxide. . . . .	Ba(OH) <sub>2</sub> .8H <sub>2</sub> O . . . . .	315.54	1.656	78° *
4	hypophosphate. . . . .	Ba <sub>2</sub> P <sub>2</sub> O <sub>6</sub> . . . . .	432.80	.....	.....
5	hypophosphite. . . . .	Ba(H <sub>2</sub> PO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	285.45	2.875	.....
6	iodate. . . . .	Ba(IO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	505.36	5.23	H <sub>2</sub> O, 130°
7	iodide. . . . .	BaI <sub>2</sub> . . . . .	391.34	4.917	539°-740°
8	manganate. . . . .	BaMnO <sub>4</sub> . . . . .	256.4	4.85	.....
9	metatungstate. . . . .	BaW <sub>4</sub> O <sub>13</sub> .9H <sub>2</sub> O . . . . .	1243.5	4.298	.....
10	nitrate. . . . .	Ba(NO <sub>3</sub> ) <sub>2</sub> . . . . .	261.48	3.244 <sup>23°</sup>	575°
11	nitrite. . . . .	Ba(NO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	247.50	.....	dec. 115°
12	oxalate. . . . .	BaC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O . . . . .	243.42	2.6578	.....
13	oxide. . . . .	BaO . . . . .	153.40	4.73-5.46	BaO <sub>2</sub> .450°
14	" . . . . .	BaO . . . . .	153.40	5.32-5.74	.....
15	perchlorate. . . . .	Ba(ClO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O . . . . .	408.36	.....	†
16	periodate. . . . .	Ba <sub>5</sub> (IO <sub>6</sub> ) <sub>2</sub> . . . . .	1132.9	.....	.....
17	permanganate. . . . .	Ba(MnO <sub>4</sub> ) <sub>2</sub> . . . . .	375.4	.....	.....
18	peroxide. . . . .	BaO <sub>2</sub> . . . . .	169.4	4.96	O, 450°
19	" . . . . .	BaO <sub>2</sub> .8H <sub>2</sub> O . . . . .	313.5	.....	.....
20	persulphate. . . . .	Ba(SO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O . . . . .	401.58	.....	.....
21	phosphate tri- . . . . .	Ba <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> . . . . .	602.2	.....	.....
22	" mono- . . . . .	BaH <sub>4</sub> (PO <sub>4</sub> ) <sub>2</sub> . . . . .	331.43	2.9	.....
23	" di- . . . . .	BaHPO <sub>4</sub> . . . . .	233.41	4.165 <sup>15°</sup>	.....
24	" pyro- . . . . .	Ba <sub>2</sub> P <sub>2</sub> O <sub>7</sub> . . . . .	448.8	4.116°	.....
25	platinocyanide . . . . .	BaPt(CN) <sub>4</sub> .4H <sub>2</sub> O . . . . .	508.42	3.054	.....
26	selenate . . . . .	BaSeO <sub>4</sub> . . . . .	280.60	4.75	.....
27	silicate. . . . .	BaSiO <sub>3</sub> .6H <sub>2</sub> O . . . . .	321.9	.....	.....
28	sulphate. . . . .	BaSO <sub>4</sub> . . . . .	233.46	4.476 4.330	infusible
29	sulphate acid . . . . .	Ba(HSO <sub>4</sub> ) <sub>2</sub> . . . . .	331.54	.....	.....
30	sulphydrate. . . . .	Ba(SH) <sub>2</sub> .4H <sub>2</sub> O . . . . .	275.60	.....	.....
31	sulphide mono- . . . . .	BaS . . . . .	169.46	4.25 <sup>15°</sup>	infusible
32	" tri- . . . . .	BaS <sub>3</sub> . . . . .	201.52	.....	.....
33	" tetra- . . . . .	BaS <sub>4</sub> .H <sub>2</sub> O . . . . .	283.66	2.98	dec. 300°
34	sulphite . . . . .	BaSO <sub>3</sub> . . . . .	217.46	.....	.....
35	sulphocyanate. . . . .	Ba(CNS) <sub>2</sub> .2H <sub>2</sub> O . . . . .	289.63	.....	.....
36	tartrate. . . . .	BaC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .H <sub>2</sub> O . . . . .	303.45	2.980 <sup>20.8°</sup>	.....
37	thiosulphate . . . . .	BaS <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O . . . . .	267.54	3.447	.....
38	Beryllium (See Glu- cium)				
39	Bismuth . . . . .	Bi . . . . .	208.5	9.7474	269°

\* Loses 7H<sub>2</sub>O at 15°; 8H<sub>2</sub>O at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	v. soluble	v. soluble	.....	crystalline.....
2	1400°	decomp.	decomp.	.....	crystalline.....
3	103°	515°	34100°	soluble al.; insol. ether.	tetragonal.....
4	.....	s. soluble	.....	soluble alcohol.....	needles.....
5	.....	29	33	insoluble alcohol.....	monoclinic.....
6	.....	0.0713.5°	0.15100°	insol. al.; sol. HCl, HNO <sub>3</sub>	monoclinic.....
7	.....	1.690°	2.89106°	v. soluble alcohol.....	rhombic.....
8	.....	insoluble	.....	decomp. by acids.....	green hexag.....
9	.....	decomp.	v. soluble	.....	tetragonal.....
10	decomp.	5.20°	32.2100°	insol. al.; s. sol. acids...	regular.....
11	.....	6820°	.....	1.6, 94% alcohol.....	hexag. needles .
12	.....	0.009318°	.....	sol.acids NH <sub>4</sub> Cl; insol.al.	.....
13	.....	1.50°	90.880°	soluble HCl, HNO <sub>3</sub> ....	amorphous ....
14	.....	.....	.....	.....	regular.....
15	.....	v. soluble	.....	v. soluble alcohol.....	hexagonal.....
16	.....	insoluble	.....	soluble HNO <sub>3</sub> .....	.....
17	.....	62.511°	72.425°	.....	.....
18	.....	insoluble	decomp.	soluble dilute acids...	.....
19	.....	insoluble.	decomp.	soluble dilute acids...	.....
20	.....	52.20°	.....	soluble alcohol.....	prisms.....
21	.....	insoluble	.....	soluble.....	.....
22	.....	soluble	.....	soluble acids.....	triclinic.....
23	.....	0.01-.02	.....	soluble acids, NH <sub>4</sub> salts	rhombic needles
24	.....	0.01	.....	soluble acids, NH <sub>4</sub> salts	amorphous ....
25	.....	316°	.....	.....	gray to yel.mon.
26	.....	0.0118	0.0138	insoluble HNO <sub>3</sub> ; sol.HCl	.....
27	.....	soluble	decomp.	soluble HCl.....	rhombic.....
28	.....	0.0001720°	0.000334°	0.006, 3% HCl; sol. conc. H <sub>2</sub> SO <sub>4</sub>	rhombic..... amorphous ....
29	.....	.....	.....	.....	.....
30	.....	soluble	.....	insoluble alcohol.....	rhombic.....
31	.....	decomp.	.....	insoluble alcohol.....	white amorph. .
32	.....	soluble	.....	.....	yellow green...
33	.....	4115°	v. soluble	insoluble alcohol, CS <sub>2</sub> ..	red rhombic ...
34	.....	0.019720°	0.0017780°	v. soluble HCl.....	hexagonal.....
35	.....	soluble	.....	3520°, 3879° alcohol....	needles.....
36	.....	0.02618°	0.02725°	0.03218° alcohol.....	.....
37	.....	0.267517.5°	.....	insoluble alcohol.....	.....
38	.....	.....	.....	.....	.....
39	1435°	insoluble	insoluble	[H <sub>2</sub> SO <sub>4</sub> sol. HNO <sub>3</sub> , aq. r., conc.	[bohedral reddish rhom-

† The anhydrous salt melts at 505°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water=1. Air=1(A). H <sub>2</sub> =1(D).	Melting Point, °C.
1	Bismuth bromide....	BiBr <sub>3</sub> .....	448.38	5.60	200°–215°
2	carbonate sub-....	Bi <sub>2</sub> O <sub>3</sub> .CO <sub>2</sub> .H <sub>2</sub> O....	527.02	6.86	decomp.
3	chloride di-....	BiCl <sub>2</sub> .....	279.4	.....	dec. 300°
4	“ tri-....	BiCl <sub>3</sub> .....	314.85	4.56 <sup>11°</sup>	227°
5	dichromate basic..	(BiO) <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	765.2	.....	.....
6	hydroxide.....	Bi(OH) <sub>3</sub> .....	259.52	.....	H <sub>2</sub> O, 100°
7	iodide.....	BiI <sub>3</sub> .....	589.41	5.65 <sup>20°</sup>	> 439°
8	nitrate.....	Bi(NO <sub>3</sub> ) <sub>3</sub> .5H <sub>2</sub> O....	484.70	2.78	74°
9	“ sub-....	BiONO <sub>3</sub> .H <sub>2</sub> O.....	304.56	4.928 <sup>15°</sup>	dec. 260°
10	oxalate.....	Bi <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .....	681.0	.....	.....
11	oxide tri-....	Bi <sub>2</sub> O <sub>3</sub> .....	465.00	8.8–9.0	820°–860°
12	“ tetra-....	Bi <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O....	517.03	5.6	O, 305°
13	“ penta-....	Bi <sub>2</sub> O <sub>5</sub> .....	497.00	.....	O, 150°
14	“ “.....	Bi <sub>2</sub> O <sub>5</sub> .H <sub>2</sub> O.....	515.02	5.917	H <sub>2</sub> O, 120°
15	oxybromide.....	BiOBr.....	304.46	8.082 <sup>15°</sup>	.....
16	oxychloride.....	BiOCl.....	259.95	7.717 <sup>15°</sup>	red heat
17	oxyfluoride..	BiOF.....	243.5	7.55 <sup>20°</sup>	.....
18	oxyiodide.....	BiOI.....	351.47	7.922	.....
19	phosphate.....	BiPO <sub>4</sub> .....	303.5	.....	.....
20	selenide.....	Bi <sub>2</sub> Se <sub>3</sub> .....	654.6	6.82	decomp.
21	sulphate.....	Bi <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	705.18	.....	.....
22	sulphide.....	Bi <sub>2</sub> S.....	513.18	7.00–7.81	decomp.
23	Boric Acid.....	H <sub>3</sub> BO <sub>3</sub> .....	62.02	1.4347 <sup>15°</sup>	184°–186°
24	Boron.....	B.....	11.0	{ 2.45 2.53–2.68	infusible infusible
25	bromide.....	BBr <sub>3</sub> .....	250.88	2.650 <sup>‡</sup>	.....
26	carbide.....	B <sub>6</sub> C.....	78.0	2.51	.....
27	chloride.....	BCl <sub>3</sub> .....	117.35	1.434 <sup>‡</sup>	.....
28	fluoride.....	BF <sub>3</sub> .....	68.00	2.3 A.	–127°
29	hydride.....	BH <sub>3</sub> .....	14.02	.....	.....
30	iodide.....	BI <sub>3</sub> .....	391.91	3.350°	43°
31	oxide.....	B <sub>2</sub> O <sub>3</sub> .....	70.00	1.75–1.83	577°
32	phosphide.....	BP.....	42.00	.....	burns 200°
33	sulphide tri-....	B <sub>2</sub> S <sub>3</sub> .....	118.18	1.55	310°
34	“ penta-....	B <sub>2</sub> S <sub>5</sub> .....	182.30	1.85	390°
35	Borofluohydric Acid	HBf <sub>4</sub> .....	88.01	.....	.....
36	Bromic Acid.....	HBrO <sub>3</sub> .....	128.97	.....	dec. 100°
37	Bromine.....	Br <sub>2</sub> .....	159.92	3.1883 <sup>0°</sup>	–7.3°
38	chloride.....	BrCl.IOH <sub>2</sub> O.....	295.57	.....	7°

\* Loses 1½ H<sub>2</sub>O at 150°.† Loses 1½ H<sub>2</sub>O at 300°.



Number.	Boiling Point, C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acid (a.), Alkalies (alk.), etc.	
1	453°–498°	decomp.	.....	soluble ether, HBr. ....	yellow .....
2	.....	insoluble	.....	sol. a.; insol. Na <sub>2</sub> CO <sub>3</sub> ..	.....
3	.....	decomp. ....	.....	.....	black .....
4	435°–447°	decomp.	.....	soluble alcohol, acids ..	.....
5	.....	insoluble	insoluble	soluble acids; insol. alk.	orange red. ....
6	*	insoluble	.....	soluble acids; insol. alk.	.....
7	.....	insoluble	decomp.	35.20° alcohol; sol. HI, KI	black hexag. ....
8	dec. 75°–80°	decomp.	.....	soluble acids. ....	.....
9	.....	insoluble	.....	soluble acids. ....	hexag. plates.
10	.....	insoluble	insoluble	soluble acids. ....	.....
11	.....	insoluble	.....	soluble acids; insol. alk.	yellow tetrag.
12	.....	insoluble	.....	soluble acids. ....	brownish yel..
13	O <sub>2</sub> , 357°	insoluble	.....	soluble a., conc. KOH. ..	brown. ....
14	O <sub>2</sub> , 357°	insoluble	.....	soluble a., conc. KOH. ..	red .....
15	.....	insoluble	.....	soluble acids. ....	.....
16	.....	insoluble	.....	sol. a.; insol. H <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub>	crystalline. ....
17	.....	insoluble	.....	soluble acids. ....	crystalline. ....
18	.....	insoluble	.....	soluble acids; insol. KI.	red crystalline.
19	.....	insoluble	insoluble	sol. HCl; insol. dil. HNO <sub>3</sub>	.....
20	.....	insoluble	.....	insoluble alkalies .....	black .....
21	.....	.....	decomp.	soluble acids. ....	needles. ....
22	.....	insoluble	.....	soluble HNO <sub>3</sub> .....	brown rhomb.
23	†	3.918°	34100°	{ 0.2425° ether, sol. al. { 2820°, 72100° glycerene	triclinic mono- clinic
24	sublimes 3500°	insoluble insoluble	insoluble insoluble	insol. al., ether; sol. conc. HNO <sub>3</sub> , conc. H <sub>2</sub> SO <sub>4</sub> .	green amorph. monoclinic
25	90.5°	decomp.	.....	decomp. by alcohol ....	.....
26	.....	insoluble	insoluble	insol. a.; dec. fused KNO <sub>3</sub>	black crystals
27	18.2°	decomp.	.....	decomp. by alcohol ....	.....
28	–101°	10570°	846	decomp. by alcohol ....	.....
29	.....	s. soluble	.....	soluble NH <sub>4</sub> OH .....	.....
30	210°	decomp.	.....	v. soluble CS <sub>2</sub> , CCl <sub>4</sub> ....	cryst. plates ..
31	high temp.	1.10°	16.4102°	soluble al., conc. a. ....	.....
32	.....	insoluble	insoluble	insoluble, all solvent. ....	.....
33	.....	decomp.	.....	s. soluble, PCl <sub>3</sub> , SCl <sub>2</sub> ....	crystals .....
34	.....	decomp.	.....	.....	crystalline. ....
35	130°	soluble	.....	.....	.....
36	.....	v. soluble	decomp.	.....	.....
37	5.9°	4.170°	3.4950°	sol. alk., CS <sub>2</sub> , ether, al., CHCl <sub>3</sub>	brown red .... [crystals
38	‡	soluble	.....	soluble CS <sub>2</sub> , ether. ....	yellow brown

‡ Decomposes above 10°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
1	Bromine hydrate...	Br <sub>2</sub> .IOH <sub>2</sub> O.....	340.08	.....	dec. 15°
2	Cadmium.....	Cd.....	112.4	8.642 <sup>17°</sup>	321.7°
3	acetate.....	Cd(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O..	284.50	2.01	.....
4	borotungstate.....	Cd <sub>2</sub> B <sub>2</sub> W <sub>9</sub> O <sub>32</sub> .18H <sub>2</sub> O..	2739.1	.....	.....
5	bromate.....	Cd(BrO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O.....	398.34	3.758	decomp.
6	bromide.....	CdBr <sub>2</sub> .....	272.32	5.192 <sup>2</sup>	57°
7	carbonate.....	CdCO <sub>3</sub> .....	172.40	4.258	decomp.
8	chlorate.....	Cd(ClO <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	315.33	.....	80°
9	chloride.....	CdCl <sub>2</sub> .....	183.30	4.05 <sup>2</sup>	590°
10	".....	CdCl <sub>2</sub> .2H <sub>2</sub> O.....	219.33	3.327	.....
11	cyanide.....	Cd(CN) <sub>2</sub> .....	164.48	.....	dec. 200°
12	ferrocyanide.....	Cd <sub>2</sub> Fe(CN) <sub>6</sub> .....	436.94	.....	.....
13	fluoride.....	CdF <sub>2</sub> .....	150.40	6.64	520
14	formate.....	Cd(CHO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O.....	220.43	2.45	decomp.
15	hydroxide.....	Cd(OH) <sub>2</sub> .....	146.42	4.79 <sup>15°</sup>	H <sub>2</sub> O, 300°
16	iodate.....	Cd(IO <sub>3</sub> ) <sub>2</sub> .....	462.34	5.644–5.98	decomp.
17	iodide.....	CdI <sub>2</sub> .....	366.34	5.644	350°
18	lactate.....	Cd(C <sub>3</sub> H <sub>5</sub> O <sub>3</sub> ) <sub>2</sub> .....	302.48	.....	.....
19	nitrate.....	Cd(NO <sub>3</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	308.54	2.455	59.5°
20	oxalate.....	CdC <sub>2</sub> O <sub>4</sub> .3H <sub>2</sub> O.....	254.45	3.32 <sup>18°</sup> *	decomp.
21	oxide.....	CdO.....	128.40	6.95	infusible
22	".....	CdO.....	128.40	8.11	"
23	oxide sub-.....	Cd <sub>4</sub> O.....	465.6	8.21–8.18 <sup>19°</sup>	decomp.
24	permanganate.....	Cd(MnO <sub>4</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	458.50	.....	decomp.
25	phosphate.....	Cd <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	527.2	.....	.....
26	potassium iodide..	CdI <sub>2</sub> .2KI.2H <sub>2</sub> O.....	734.59	3.359	.....
27	selenate.....	CdSeO <sub>4</sub> .2H <sub>2</sub> O.....	291.63	3.632	.....
28	sulphate.....	CdSO <sub>4</sub> .....	208.46	4.72 <sup>15°</sup>	1000°
29	".....	3CdSO <sub>4</sub> .8H <sub>2</sub> O.....	769.51	3.05	.....
30	".....	CdSO <sub>4</sub> .4H <sub>2</sub> O.....	280.52	3.05	.....
31	sulphide artificial..	CdS.....	144.46	3.9–4.8	white heat
32	" greenockite	CdS.....	144.46	4.8–4.9	.....
33	sulphite.....	CdSO <sub>3</sub> .....	192.46	.....	decomp.
34	tungstate.....	CdWO <sub>4</sub> .....	360.40	.....	.....
35	Caesium.....	Cs.....	132.9	2.366°	26.37°
36	bromide.....	CsBr.....	212.86	4.455 <sup>21.4°</sup>	.....
37	bromiodide.....	CsBrI <sub>2</sub> .....	466.80	.....	.....
38	carbonate.....	Cs <sub>2</sub> CO <sub>3</sub> .....	325.80	.....	.....
39	chloraureate.....	CsAuCl <sub>4</sub> .....	471.90	.....	.....
40	chloride.....	CsCl.....	168.35	3.972 <sup>2</sup>	631°
41	chloroplatinate....	Cs <sub>2</sub> PtCl <sub>6</sub> .....	673.30	.....	.....

\* Anhydrous.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		soluble			red octahedra.
2	778°	insoluble	insoluble	sol. a., $\text{NH}_4\text{NO}_3$	crystalline.
3		v. soluble			monoclinic.
4		1250 <sup>19°</sup>			
5		1251 <sup>17°</sup>			triclinic.
6	806°–812°	106	161 <sup>100°</sup>	soluble alcohol, ether	crystalline.
7		insoluble	insoluble	sol. acid, $\text{NH}_4$ salts	
8		soluble	soluble	soluble acids	
9	861°–954°	140 <sup>20°</sup>	150 <sup>100°</sup>	1.52 <sup>15°</sup> alcohol	
10		168 <sup>20°</sup>	180 <sup>100°</sup>	2.05 <sup>15°</sup> methyl alcohol	
11		1.7 <sup>15°</sup>		sol. KCN, $\text{NH}_4\text{OH}$ , a.	crystalline.
12		insoluble		sol. HCl	
13	1000°	soluble		insol. al.; sol. acids	crystalline.
14		v. soluble		[salts	monoclinic.
15		insoluble		insol. alk.; sol. a., $\text{NH}_4$	hexagonal.
16		s. soluble	s. soluble	soluble $\text{HNO}_3$ , $\text{NH}_4\text{OH}$	crystalline.
17	708°–719°	80.1 <sup>10°</sup>	128 <sup>100°</sup>	sol. al., ether, $\text{NH}_4\text{OH}$	brownish.
18		10	12.5	insoluble alcohol	needles.
19	132°	v. soluble		sol. al.; insol. $\text{HNO}_3$	prism. needles.
20		0.008	0.009	sol. a., $\text{NH}_3\text{aq}$	
21		insoluble	insoluble	{ soluble acid, $\text{NH}_4$ salts	brown amorph.
22		insoluble	insoluble	{ insol. alk.	regular.
23				decomp. by alk., acids	green amorph.
24		v. soluble			
25		insoluble		soluble $\text{NH}_4$ salts, acids	amorphous
26		137 <sup>15°</sup>		71 <sup>15°</sup> al.; 42 <sup>15°</sup> ether	
27		v. soluble			rhombic.
28		59 <sup>23°</sup>			
29		76 <sup>13°</sup>			monoclinic.
30		79 <sup>23°</sup>		insoluble alcohol	[or amorph.
31		{ 0.4 to 1.1	coloidal sol.	v. s. sol. $\text{NH}_4\text{OH}$ ; sol. a.	yellow hexag...
32		{ insoluble		soluble conc. acids	yellow hexag..
33		s. soluble		insol. al.; sol. a., $\text{NH}_4\text{OH}$	crystalline.
34		0.05		soluble $\text{NH}_4\text{OH}$	yellow crystals
35	670°	decomp.	decomp.	soluble acids, alcohol	silvery.
36		soluble		decomp. by alcohol	
37		decomp.		soluble alcohol	
38	dec. 610°	deliques.	v. soluble	11.1 <sup>19°</sup> , 20.1 <sup>79°</sup> alcohol	
39		0.5 <sup>10°</sup>	38 <sup>100°</sup>	soluble alcohol	
40		61.9 <sup>0°</sup>	67.4 <sup>40°</sup>	soluble alcohol	regular.
41		0.024 <sup>0°</sup>	0.377 <sup>100°</sup>		yellow regular.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Caesium cyanide....	CsCN.....	158.94	.....	.....
2	fluosilicate.....	Cs <sub>2</sub> SiF <sub>6</sub> .....	408.2	3.376 <sup>17</sup>	.....
3	hydride.....	CsH.....	133.91	2.7	decomp.
4	hydroxide.....	CsOH.....	149.91	4.018	<red heat
5	iodide.....	CsI.....	259.87	4.508 <sup>22.8°</sup>	621°
6	mercuric bromide..	CsBr.2HgBr <sub>2</sub> .....	932.70	.....	.....
7	mercuric chloride..	CsCl.HgCl <sub>2</sub> .....	439.25	.....	.....
8	nitrate.....	CsNO <sub>3</sub> .....	194.94	3.687 <sup>18</sup>	414°
9	pentasulphide....	Cs <sub>2</sub> S <sub>5</sub> .....	426.1	2.806 <sup>16°</sup>	202°-205°
10	perchlorate.....	CsClO <sub>4</sub> .....	232.35	.....	decomp.
11	permanganate.....	CsMnO <sub>4</sub> .....	251.9	3.5974 <sup>10.3°</sup>	decomp.
12	silicotungstate....	Cs <sub>8</sub> SiW <sub>12</sub> O <sub>42</sub> .....	3971.6	.....	.....
13	sulphate.....	Cs <sub>2</sub> SO <sub>4</sub> .....	361.86	4.2434 <sup>19</sup>	.....
14	sulphide.....	Cs <sub>2</sub> S.4H <sub>2</sub> O.....	369.92	.....	.....
15	tartrate acid.....	CsHC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	281.94	.....	.....
16	Calcium.....	Ca.....	40.1	1.5446 <sup>29.2°</sup>	780°-810°
17	acetate.....	Ca(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O ..	176.16	.....	decomp.
18	aluminate.....	CaAl <sub>2</sub> O <sub>4</sub> .....	158.3	3.671 <sup>20°</sup>	.....
19	ammonium arsenate	NH <sub>4</sub> Ca.AsO <sub>4</sub> .6H <sub>2</sub> O..	305.27	1.905 <sup>15°</sup>	decomp.
20	ammonium .....	CaNH <sub>4</sub> PO <sub>4</sub> .7H <sub>2</sub> O....	279.28	1.561 <sup>15°</sup>	decomp.
	phosphate				
21	arsenide.....	Ca <sub>3</sub> As <sub>2</sub> .....	270.30	2.5 <sup>15°</sup>	decomp.
22	borate.....	Ca(BO <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	162.13	.....	.....
23	boride.....	CaB <sub>6</sub> .....	106.10	2.33 <sup>15°</sup>	.....
24	bromide.....	CaBr <sub>2</sub> .....	200.02	3.4 <sup>20°</sup>	485°-760°
25	" .....	CaBr <sub>2</sub> .6H <sub>2</sub> O.....	308.3	.....	34.2°
26	carbide.....	CaC <sub>2</sub> .....	64.10	2.22 <sup>18°</sup>	.....
27	carbonate.....	CaCO <sub>3</sub> .....	100.10	2.72-2.95	dec. 825°
28	chlorate.....	Ca(ClO <sub>3</sub> ) <sub>2</sub> .....	207.00	.....	>100°
29	chloride.....	CaCl <sub>2</sub> .....	111.00	2.26 <sup>20°</sup>	710°-806°
30	" .....	CaCl <sub>2</sub> .H <sub>2</sub> O.....	129.02	.....	.....
31	" .....	CaCl <sub>2</sub> .6H <sub>2</sub> O.....	219.10	1.654	29.92°
32	chromate.....	CaCrO <sub>4</sub> .2H <sub>2</sub> O.....	192.23	.....	2H <sub>2</sub> O, 200°
33	citrate.....	Ca <sub>3</sub> (C <sub>6</sub> H <sub>7</sub> O <sub>7</sub> ) <sub>2</sub> .4H <sub>2</sub> O..	574.48	.....	decomp.
34	ferrocyanide.....	Ca <sub>2</sub> Fe(CN) <sub>6</sub> .12H <sub>2</sub> O..	548.53	.....	.....
35	fluoride.....	CaF <sub>2</sub> .....	78.10	3.15-3.18	902-1330°
36	fluosilicate.....	CaSiF <sub>6</sub> .....	183.50	2.662 <sup>17.5°</sup>	.....
37	formate.....	Ca(CHO <sub>2</sub> ) <sub>2</sub> .....	130.12	2.021	decomp.
38	hydride.....	CaH <sub>2</sub> .....	42.12	1.7	.....
39	hydroxide.....	Ca(OH) <sub>2</sub> .....	74.12	2.078	.....

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1				insoluble alcohol.	
2		60 <sup>17°</sup>	v. soluble	insoluble alcohol.	regular.
3		decomp.	decomp.	decomp. by acids.	crystals.
4		soluble	soluble	soluble alcohol.	grayish.
5					
6		0.807 <sup>16°</sup>		s. soluble alcohol.	
7		1.406 <sup>17°</sup>		insoluble alcohol.	
8	decomp.	10.6 <sup>32°</sup>		s. soluble alcohol.	cubic.
9				soluble alcohol.	
10		insoluble		insol. absolute alcohol.	
11		soluble			
12		0.005 <sup>20°</sup>	0.52 <sup>100°</sup>	insol. alcohol, HCl.	
13		158.7–2°		insoluble alcohol.	needles.
14		v. soluble	v. soluble		crystals.
15		9.7 <sup>25°</sup>	98 <sup>100°</sup>	.....[benzol	[or rhombohed
16		decomp.	decomp.	sol. a., sodium; insol.	silvery hexag.
17		v. soluble		s. soluble alcohol.	needles...[dles
18		decomp.		insol. benzine; sol. HCl.	prismatic nee-
19		0.02	soluble	insol. NH <sub>4</sub> OH; sol. NH <sub>4</sub> Cl	monocl. plates.
20		insoluble	insoluble	soluble acids.	monoclinic....
21		decomp.	decomp.	soluble acids.	reddish cryst..
22		s. soluble		soluble acids, NH <sub>4</sub> salts	
23		insoluble	insoluble	soluble HNO <sub>3</sub> .	black regular.
24	806°–812°	125°	312 <sup>105°</sup>	v. soluble alcohol.	needles.
25	149°–150°	192.5°	481 <sup>105°</sup>		
26		decomp. to	C <sub>2</sub> H <sub>2</sub>		crystalline....
27		0.0013	0.088	0.1 CO <sub>2</sub> aq.; sol.a., NH <sub>4</sub> Cl	rhombic *....
28		v. soluble		soluble alcohol.	rhombic.
29		49.6°	154 <sup>99°</sup>	soluble alcohol.	
30		57.9°	179 <sup>99°</sup>	soluble alcohol.	
31	129°–130°	96.2°	300 <sup>99°</sup>	soluble alcohol.	hexagonal....
32		0.41 <sup>14°</sup>	soluble	sol. alcohol, acids.	yellow prisms.
33		0.085 <sup>18°</sup>	0.096 <sup>25°</sup>	0.0065 <sup>18°</sup> alcohol.	needles.
34			50 <sup>90°</sup>		triclinic.
35		0.037 <sup>15.5°</sup>		s. soluble conc. acids.	regular.
36		s. soluble		soluble HF, HCl, al.	
37		10 to 12.5		insoluble alcohol.	rhombic.
38		decomp.	decomp.	insol. benzine; dec. by a.	crystalline....
39		0.17°	0.08 <sup>100°</sup>		hexagonal....

\* Also hexagonal or rhombohedral.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water= 1. Air= 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Calcium</b>					
1	hypochlorite . . . . .	Ca(ClO) <sub>2</sub> .4H <sub>2</sub> O . . . . .	215.06	.....	decomp.
2	hypophosphate . . . . .	Ca <sub>2</sub> P <sub>2</sub> O <sub>6</sub> .2H <sub>2</sub> O . . . . .	274.23	.....	.....
3	hypophosphite . . . . .	Ca(H <sub>2</sub> PO <sub>2</sub> ) <sub>2</sub> . . . . .	170.13	.....	.....
4	iodate . . . . .	Ca(IO <sub>3</sub> ) <sub>2</sub> . . . . .	390.04	.....	decomp.
5	iodide . . . . .	CaI <sub>2</sub> . . . . .	294.04	4.920°	631°-740°
6	" . . . . .	CaI <sub>2</sub> .6H <sub>2</sub> O . . . . .	402.14	.....	42°
7	lactate . . . . .	Ca(C <sub>3</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>2</sub> .5H <sub>2</sub> O . . . . .	276.26	.....	3H <sub>2</sub> O, 100°
8	nitrate . . . . .	Ca(NO <sub>3</sub> ) <sub>2</sub> . . . . .	164.18	2.36	561°-499°
9	" . . . . .	Ca(NO <sub>3</sub> ) <sub>2</sub> .4H <sub>2</sub> O . . . . .	236.24	1.82	44°
10	nitrid . . . . .	Ca <sub>3</sub> N <sub>2</sub> . . . . .	148.38	2.6317°	1200°
11	nitrite . . . . .	Ca(NO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	150.20	.....	.....
12	oxalate . . . . .	CaC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O . . . . .	146.12	2.24° *	decomp.
13	oxide . . . . .	CaO . . . . .	56.10	3.15-3.40	infusible
14	permanganate . . . . .	Ca(MnO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O . . . . .	330.16	.....	decomp.
15	peroxide . . . . .	CaO <sub>2</sub> .8H <sub>2</sub> O . . . . .	216.23	.....	8H <sub>2</sub> O, 130°
16	phosphate . . . . .	Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> . . . . .	310.30	3.18	.....
17	" di- . . . . .	CaHPO <sub>4</sub> .2H <sub>2</sub> O . . . . .	172.14	2.31715°	decomp.
18	" mono- . . . . .	CaH <sub>4</sub> (PO <sub>4</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	252.15	2.02	H <sub>2</sub> O, 100°
19	" pyro- . . . . .	Ca <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .4H <sub>2</sub> O . . . . .	326.26	.....	.....
20	phosphide . . . . .	Ca <sub>3</sub> P <sub>2</sub> . . . . .	182.30	2.5115°	dif. fusible
21	phosphite . . . . .	2CaHPO <sub>3</sub> .3H <sub>2</sub> O . . . . .	294.26	.....	.....
22	plumbate . . . . .	Ca <sub>2</sub> PbO <sub>4</sub> . . . . .	351.1	.....	.....
23	plumbite . . . . .	CaPbO <sub>2</sub> . . . . .	279.0	.....	.....
24	potassium sulphate	CaK <sub>2</sub> (SO <sub>4</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	328.54	2.617°	.....
25	salicylate . . . . .	Ca(C <sub>7</sub> H <sub>5</sub> O <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O . . . . .	350.21	.....	.....
26	silicate . . . . .	CaSiO <sub>3</sub> . . . . .	116.50	2.88	>1400°
27	silicide . . . . .	CaSi <sub>2</sub> . . . . .	96.9	2.5	✓ . . . . .
28	sulphate . . . . .	CaSO <sub>4</sub> . . . . .	136.16	2.964	.....
29	" (gypsum) . . . . .	CaSO <sub>4</sub> .2H <sub>2</sub> O . . . . .	172.19	2.32	2H <sub>2</sub> O, 80°
30	sulphydrate . . . . .	Ca(SH) <sub>2</sub> .6H <sub>2</sub> O . . . . .	214.33	.....	dec. 15-18
31	sulphide . . . . .	CaS . . . . .	72.16	2.815°	fusible
32	sulphite . . . . .	CaSO <sub>3</sub> .2H <sub>2</sub> O . . . . .	156.19	.....	2H <sub>2</sub> O, 100°
33	sulphocarbonate . . . . .	CaCS <sub>3</sub> . . . . .	148.28	.....	.....
34	sulphocyanate . . . . .	Ca(CNS) <sub>2</sub> .3H <sub>2</sub> O . . . . .	210.35	.....	.....
35	tartrate . . . . .	CaC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .4H <sub>2</sub> O . . . . .	260.20	.....	decomp.
36	thiosulphate . . . . .	CaS <sub>2</sub> O <sub>3</sub> .6H <sub>2</sub> O . . . . .	260.32	1.872	.....
37	tungstate . . . . .	CaWO <sub>4</sub> . . . . .	288.1	6.062	.....
38	Carbon amorphous . . . . .	C . . . . .	12.00	1.75-2.10	{ sublimes
39	" graphite . . . . .	C . . . . .	12.00	2.10-2.585	{ at
40	" diamond . . . . .	C . . . . .	12.00	3.47-3.5585	{ 3500°

\* Density of the anhydrous salt.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	deliques.	decomp.	.....	.....
2	.....	insoluble	.....	soluble $H_4P_2O_6$ , HCl....	.....
3	.....	17	.....	insoluble alcohol.....	monoclinic ...
4	.....	0.415°	1.33100°	soluble $HNO_3$ .....	rhombic.....
5	708°-719°	192°	43592°	soluble acids, al.....	plates.....
6	160°	263°	59692°	.....	.....
7	.....	10.5	.....	insol. ether; sol. alcohol	.....
8	.....	93.1°	351.2152°	1415 alcohol; sol. amyl. al	prisms.....
9	132°	134°	506152°	0.8 alcohol.....	monoclinic....
10	.....	decomp.	decomp.	sol.dil.acids; insol.ab.al.	brown crystals
11	.....	deliques. ...	v. soluble	insoluble alcohol.....	prisms.....
12	.....	0.0006825°	0.001495°	sol. a.; insol. $H.C_2H_3O_2$	octahedral....
13	.....	0.13°	0.06100°	soluble acids.....	regular.....
14	.....	33114°	38825°	.....[ $NH_4$ salts	purple prisms.
15	.....	s. soluble	decomp.	insol. al., ether; sol. a.,	tetragonal....
16	.....	0.003-0.008	decomp.	soluble acids; insol. al...	amorphous ...
17	.....	0.028	decomp.	insol.al.; sol. $NH_4C_6H_7O_7$	monocl. plates.
18	dec. 200°	415°	decomp.	.....	rhombic.....
19	.....	s. soluble.	.....	soluble a.; insol. $NH_4Cl$	crystalline....
20	.....	decomp.	.....	insol. al., ether; sol. dil.a	red crystals...
21	.....	s. soluble	decomp.	sol. $NH_4Cl$ ; insol. al....	.....
22	.....	insoluble	.....	soluble acids.....	brown crystals
23	.....	s. soluble	.....	.....	crystalline....
24	.....	0.25	decomp.	soluble acids.....	monoclinic....
25	.....	v. soluble	.....	soluble alcohol.....	octahedral....
26	.....	s. soluble	.....	soluble HCl.....	monocl.or hex-
27	.....	insoluble	.....	.....	.....[agonal
28	.....	0.179°	0.178100°	{ sol. a., $Na_2S_2O_3$ , $NH_4$ salts sol. HCl, NaCl, glycerine	rhombic.....
29	.....	0.241°	0.222100°		monoclinic....
30	.....	v. soluble	.....	soluble alcohol.....	prismatic....
31	.....	0.1510°	0.3390°	soluble acids.....	regular.....
32	.....	0.125°	.....	soluble $H_2SO_3$ .....	crystalline....
33	.....	soluble	.....	soluble alcohol.....	yellow.....
34	.....	deliques.	v. soluble	v. soluble alcohol.....	crystalline....
35	.....	0.01615°	0.3100°	s. soluble alcohol.....	trimetr. prisms
36	.....	1003°	decomp.	insoluble alcohol.....	triclinic.....
37	.....	0.2	.....	insoluble a.; sol. $NH_4Cl$ .	tetragonal....
38	.....	insoluble	insoluble	{ insoluble in acids .... alkalies; soluble in.... molten metals .....	black amorph.
39	.....	insoluble	insoluble		black hexag...
40	.....	insoluble	insoluble		regular.....

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water= 1. Air= 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Carbon bromide di...	C <sub>2</sub> Br <sub>4</sub> .....	343.84	.....	53°
2	bromide tri.....	C <sub>2</sub> Br <sub>6</sub> .....	503.76	.....	.....
3	" tetra.....	CBr <sub>4</sub> .....	331.84	3.42 <sup>14°</sup>	92°
4	chloride di.....	C <sub>2</sub> Cl <sub>4</sub> .....	165.80	1.62 <sup>20°</sup>	.....
5	" tri.....	C <sub>2</sub> Cl <sub>6</sub> .....	236.70	{ 1.6298 8.15 A	182°
6	" tetra.....	CCl <sub>4</sub> .....	153.80	1.5817 <sup>4</sup>	- 23.77°
7	dioxide gaseous....	CO <sub>2</sub> .....	44.00	1.53A. ....	.....
8	" liquid.....	CO <sub>2</sub> .....	44.00	1.057- <sup>34°</sup>	- 65°
9	" solid.....	CO <sub>2</sub> .....	44.00	1.56- <sup>79°</sup>	- 65°
10	disulphide.....	CS <sub>2</sub> .....	76.12	1.292 <sup>2</sup> 2.63A	- 110°
11	iodide.....	CI <sub>4</sub> .....	519.88	4.32 <sup>20.2°</sup>	decomp.
12	monoxide.....	CO.....	28.00	0.9670A.	- 199°-
13					- 207°
	monosulphide.....	CS.....	44.06	1.66	decomp.
14	oxybromide.....	COBr <sub>2</sub> .....	187.92	2.48 <sup>0°</sup>	.....
15	oxychloride (phos- gene)	COCl <sub>2</sub> .....	98.90	1.432 <sup>0°</sup>	.....
16	oxysulphide.....	COS.....	60.06	{ 2.10 A. 30.4 D.	decomp.
17	silicide.....	CSi <sub>2</sub> .....	68.8	2.5	.....
18	thionyl chloride...	CSCl <sub>2</sub> .....	114.96	1.5085 <sup>15°</sup>	.....
19	" perchloride	CSCl <sub>4</sub> .....	185.86	1.712 <sup>12.8°</sup>	.....
20	Cerium.....	Ce.....	140.25	7.0424	623°
21	Ceric carbide.....	CeC <sub>2</sub> .....	164.25	5.23	.....
22	fluoride.....	CeF <sub>4</sub> .H <sub>2</sub> O.....	234.27	.....	decomp.
23	hydroxide.....	2CeO <sub>2</sub> .3H <sub>2</sub> O.....	398.55	.....	.....
24	nitrate.....	Ce(NO <sub>3</sub> ) <sub>4</sub> .....	388.41	.....	.....
25	oxide.....	CeO <sub>2</sub> .....	172.25	7.65	.....
26	peroxide.....	CeO <sub>3</sub> .....	188.25	.....	.....
27	silicide.....	CeSi <sub>2</sub> .....	197.05	5.67 <sup>17°</sup>	.....
28	sulphate.....	Ce(SO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	404.43	.....	.....
29	Cerous acetate.....	Ce <sub>2</sub> (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>6</sub> .3H <sub>2</sub> O..	688.69	.....	3H <sub>2</sub> O, 115°
30	bromide.....	CeBr <sub>3</sub> .H <sub>2</sub> O.....	398.15	.....	decomp.
31	carbonate.....	Ce <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	622.64	.....	decomp.
32	chloride.....	CeCl <sub>3</sub> .....	246.60	3.88 <sup>15.5</sup> 15.5	v. fusible
33	fluoride.....	CeF <sub>3</sub> . <sup>1</sup> / <sub>2</sub> H <sub>2</sub> O.....	206.26	.....	.....
34	hydroxide.....	Ce <sub>2</sub> O <sub>3</sub> .6H <sub>2</sub> O.....	436.60	.....	.....
35	iodide.....	CeI <sub>3</sub> .9H <sub>2</sub> O.....	683.30	.....	.....
36	nitrate.....	Ce(NO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O.....	435.33	.....	3H <sub>2</sub> O, 150°
37	oxalate.....	Ce <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	706.64	.....	decomp.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	.....	.....	.....	.....
2	.....	.....	.....	sol. CS.; insol. al., ether	.....
3	189.5°	insoluble	.....	sol. al., ether, CHCl <sub>3</sub> ...	tablets.....
4	121°	.....	.....	.....	.....
5	187°	insoluble	.....	soluble alcohol, ether ..	rhombic, tri- clinic or reg.
6	76.74°	insoluble	.....	.....	.....
7	.....	179.67c.c. <sup>0°</sup>	90.14c.c. <sup>20°</sup>	283 c.c. <sup>22.6°</sup> al., sol. alk..	.....
8	-78.2°	insoluble	.....	soluble alcohol, ether ..	.....
9	-78.2°	.....	.....	.....	crystalline....
10	46.2°	0.2°	0.014 <sup>50°</sup>	soluble alcohol, ether...	.....
11	.....	.....	decomp.	soluble al., CS <sub>2</sub> , ether ..	octahedra....
12	-190°	0.0287 <sup>6°</sup>	.02315 <sup>18.5°</sup>	0.20566 <sup>16°</sup> al.sol. Cu <sub>2</sub> Cl <sub>2</sub>	.....
13	200°	insoluble	.....	insol. al.; sol. CS <sub>2</sub> , ether	red powder...
14	63-66°	.....	.....	.....	.....
15	8.2°	decomp.	.....	sol.glac.HC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ;dec.al	.....
16	-47°	80c.c. <sup>13.5°</sup>	.....	v. soluble alcohol, alk...	.....
17	.....	decomp.	decomp.	insol.al., ether; sol. conc.	grayish cryst .
18	70°	.....	.....	.....[HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub>	golden red....
19	146-147°	.....	decomp.	.....	golden yellow.
20	.....	insoluble	insoluble	sol. dil. a.; insol. conc. a.	steel gray....
21	.....	decomp.	decomp.	soluble acids.....	reddish hexag.
22	.....	insoluble	.....	.....	amorphous ...
23	.....	soluble acids	insol. alk.	s. sol. alk., carbonate aq	.....
24	.....	deliques.	decomp.	soluble alcohol.....	reddish yellow
25	.....	insoluble	insoluble	sol. conc. H <sub>2</sub> SO <sub>4</sub> .....	yellow tesseral.
26	.....	.....	.....	.....	red.....
27	.....	insoluble	.....	.....	.....
28	.....	soluble	.....	.....	yellow needles
29	decomp.	soluble	.....	.....	needles.....
30	.....	deliques.	.....	soluble alcohol.....	needles.....
31	.....	insoluble	.....	soluble (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> ..	.....
32	.....	100	decomp.	30 alcohol.....	crystals.....
33	.....	insoluble	.....	.....	.....
34	.....	sol. acids	insol.alk.	sol.(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> ;insol.alk.	.....
35	.....	soluble	.....	soluble alcohol.....	crystalline....
36*	.....	deliques.	v. soluble	50 alcohol.....	red crystals...
37	.....	insoluble	.....	insoluble oxalic acid...	.....

\* Decomposes at 200°.

Number	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Cerous oxide.....	Ce <sub>2</sub> O <sub>3</sub> .....	328.50	6.9–7.0 •	.....
2	oxychloride.....	Ce <sub>2</sub> O <sub>3</sub> .2CeCl <sub>3</sub> .....	821.7	.....	.....
3	phosphate.....	CePO <sub>4</sub> .....	235.25	3.8	.....
4	sulphate.....	Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	568.68	3.912	.....
5	“.....	Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .8H <sub>2</sub> O.....	712.81	3.220	8H <sub>2</sub> O, 630°
6	sulphide.....	Ce <sub>2</sub> S <sub>3</sub> .....	376.68	5.020 <sup>110°</sup>	decomp.
7	Chloric Acid.....	HClO <sub>3</sub> .7H <sub>2</sub> O.....	210.57	1.282 <sup>14°</sup>	< –20°
8	Chlorine.....	Cl <sub>2</sub> .....	70.90	2.491 <sup>10°</sup> A.	–102°
9	hydrate.....	Cl.5H <sub>2</sub> O.....	125.53	1.23	–50°
10	oxide mon-.....	Cl <sub>2</sub> O.....	86.90	2.977 A.	–20°
11	“ di- or per-...	ClO <sub>2</sub> .....	67.45	1.5, 2.315 A.	–79°
12	“ hept-.....	Cl <sub>2</sub> O <sub>7</sub> .....	182.9	.....	.....
13	Chlorosulphonic Acid	ClSO <sub>2</sub> .OH.....	116.52	1.784 <sup>†</sup>	82°
14	Chromium.....	Cr.....	52.1	6.92 <sup>20°</sup>	1515°
15	dioxide.....	CrO <sub>2</sub> .....	84.10	.....	190, O, 300
16	phosphide.....	CrP.....	83.10	5.71 <sup>15°</sup>	.....
17	tetrasulphide.....	Cr <sub>3</sub> S <sub>4</sub> .....	234.54	.....	.....
18	trioxide.....	CrO <sub>3</sub> .....	100.10	2.67–2.82	170°
19	Chromic bromide...	CrBr <sub>3</sub> .....	291.98	.....	.....
20	“ “.....	CrBr <sub>3</sub> .6H <sub>2</sub> O.....	400.08	.....	.....
21	carbide.....	Cr <sub>3</sub> C <sub>2</sub> .....	180.3	5.62	.....
22	chloride.....	CrCl <sub>3</sub> .....	158.45	2.757 <sup>15°</sup>	.....
23	“.....	CrCl <sub>3</sub> .6H <sub>2</sub> O.....	266.55	.....	sublimes 250°
24	fluoride.....	CrF <sub>3</sub> .....	109.1	3.78	decomp.
25	“.....	CrF <sub>3</sub> .9H <sub>2</sub> O.....	271.24	.....	.....
26	hydroxide.....	Cr(OH) <sub>3</sub> .....	103.12	.....	.....
27	nitrate.....	Cr(NO <sub>3</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	400.36	.....	37°
28	nitride.....	CrN.....	66.14	.....	dec. 1500°
29	oxide.....	Cr <sub>2</sub> O <sub>3</sub> .....	152.20	5.04	dec. 400°
30	phosphate.....	Cr <sub>2</sub> (PO <sub>4</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	402.30	.....	.....
31	“.....	Cr <sub>2</sub> (PO <sub>4</sub> ) <sub>2</sub> .12H <sub>2</sub> O.....	510.39	2.121	7H <sub>2</sub> O, 100°
32	silicide.....	Cr <sub>3</sub> Si <sub>2</sub> .....	213.10	5.6	.....
33	sulphate.....	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	392.38	3.012	.....
34	“.....	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .5H <sub>2</sub> O.....	482.46	.....	.....
35	“.....	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .15H <sub>2</sub> O.....	662.62	1.867 <sup>17°</sup>	18H <sub>2</sub> O, 100
36	sulphide.....	Cr <sub>2</sub> S <sub>3</sub> .....	200.38	3.77 <sup>19°</sup>	.....
37	Chromous acetate...	Cr <sub>2</sub> (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>6</sub> .2H <sub>2</sub> O..	494.38	.....	.....
38	carbonate.....	CrCO <sub>3</sub> .....	112.10	.....	.....

\* Decomposes at 40°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (aq.), Alkalies (alk.), etc.	
1		insoluble		soluble conc. $\text{H}_2\text{SO}_4$ ...	gray powder...
2		insoluble		soluble dilute acids...	purple...
3		insoluble	insoluble	soluble acids...	monocl. prisms.
4		16.56°	2.25 <sup>100°</sup>		[or rhombic
5		23.8°	65°		monocl., triclinic
6		insoluble	decomp.	soluble dilute acids...	black crystals..
7*		v. soluble			
8	-33.6°	150° <sup>0</sup> , 300 <sup>100°</sup>	180 <sup>30°</sup> c.c.	soluble alkalies...	greenish yellow.
9†		soluble			octahedra...
10	-5°	20000 c.c. <sup>0°</sup>			reddish yellow.
11	9.9°	2000 c.c. <sup>4°</sup>	decomp.	sol. conc. $\text{H}_2\text{SO}_4$ , alk. ...	yellowish green.
12	82°	soluble		sol. benzene...	oil...
13	155.3°	decomp.		insol. $\text{CS}_2$ ; decomp. al. ...	
14		insoluble	insoluble	sol. $\text{HCl}$ , dil. $\text{H}_2\text{SO}_4$ ; insol. $\text{HNO}_3$	gray crystal-line
15		insoluble			dark grey...
16		insoluble		insol. a.; sol. $\text{HNO}_3$ , $\text{HF}$ .	gray black crys.
17		insoluble		s. soluble conc. acids...	gray blk. powder
18	decomp.	v. soluble	v. soluble	sol. al., ether, $\text{H}_2\text{SO}_4$ ...	red triclinic...
19		insoluble			olive green hex.
20		200		v. soluble alcohol...	green hexag. pl.
21		insoluble	insoluble	sol. dil. $\text{HCl}$ ...	gray crystals ..
22	1200-1500°	insoluble	s. soluble	insol. a.; sol. trace $\text{CrCl}_2$ .	pink crystals...
23		v. soluble		soluble alcohol...	{ violet plates . { gr. hexag. pl..
24		insoluble		insol. al.; s. sol. acids ..	greenish octah..
25		v. soluble		insoluble al.; sol. a. ....	..[-blue gelatin.
26		insoluble		sol. a., alk.; s. sol. $\text{NH}_3$ aq	gray-green or
27	125.5°	soluble			purple prisms..
28		insoluble		insol. acids, alkalies	amorphous...
29		insoluble		s. soluble acids...	dark green hex.
30		s. soluble		{ sol. acids, alk.; .....	green. ....
31		s. soluble		{ insol. $\text{H.C}_2\text{H}_3\text{O}_2$ .....	violet triclinic..
32		insoluble	insoluble	sol. $\text{HCl}$ , $\text{HF}$ .; insol. $\text{HNO}_3$ , $\text{H}_2\text{SO}_4$	tetragonal prisms .....
33		insoluble		insoluble acids...	
34				v. soluble alcohol...	green amorph...
35		120 <sup>20°</sup>	decomp. 67°	insoluble alcohol...	violet octahed..
36		insoluble	decomp.	soluble $\text{HNO}_3$ ...	brn. black pow.
37		soluble		insoluble alcohol...	green. ....
38		insoluble		insoluble ether...	amorphous .....

† Decomposes at 35°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Chromous chloride..	CrCl <sub>2</sub> .....	123.00	2.751 <sup>14°</sup>	.....
2	fluoride.....	CrF <sub>2</sub> .....	90.1	4.11	1100°
3	hydroxide.....	Cr(OH) <sub>3</sub> .....	86.12	.....	.....
4	iodide.....	CrI <sub>2</sub> .....	306.04	.....	.....
5	sulphate.....	CrSO <sub>4</sub> .7H <sub>2</sub> O.....	274.27	.....	.....
6	sulphide.....	CrS.....	84.16	4.08	.....
7	Chromyl trichloride..	CrO <sub>2</sub> Cl <sub>2</sub> .....	155.00	1.9617 <sup>‡</sup>	.....
8	Cobalt.....	Co.....	59.0	8.718 <sup>‡</sup>	1530°
9	phosphide.....	Co <sub>2</sub> P.....	149.0	6.415°	.....
10	Cobaltic boride.....	CoB.....	70.0	7.2518°	.....
11	chloride.....	CoCl <sub>3</sub> .....	165.35	2.94	sublimes
12	“ dichro-...	Co(NH <sub>3</sub> ) <sub>3</sub> Cl <sub>3</sub> .H <sub>2</sub> O ..	234.56	.....	.....
13	“ praseo-...	Co(NH <sub>3</sub> ) <sub>4</sub> Cl <sub>3</sub> .H <sub>2</sub> O ..	251.62	.....	.....
14	“ purpureo-..	Co(NH <sub>3</sub> ) <sub>5</sub> Cl <sub>3</sub> .....	250.67	1.80215°	.....
15	“ luteo-....	Co(NH <sub>3</sub> ) <sub>6</sub> Cl <sub>3</sub> .....	267.73	1.7016 <sup>20°</sup>	.....
16	“ roseo-....	Co(NH <sub>3</sub> ) <sub>5</sub> Cl <sub>3</sub> .H <sub>2</sub> O ..	268.69	.....	.....
17	chromate.....	2CoO.CrO <sub>3</sub> .2H <sub>2</sub> O ..	286.13	.....	.....
18	hydroxide.....	Co(OH) <sub>3</sub> .....	110.02	.....	.....
19	oxide.....	Co <sub>2</sub> O <sub>3</sub> .....	166.00	4.81–5.60	dec. red
20	potassium nitrite..	2Co(NO <sub>2</sub> ) <sub>3</sub> .6KNO <sub>2</sub> . 3H <sub>2</sub> O	959.43	.....	.....
21	sulphate.....	Co <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	406.18	.....	.....
22	sulphide.....	Co <sub>2</sub> S <sub>3</sub> .....	214.18	4.8	.....
23	“ di-.....	CoS <sub>2</sub> .....	123.12	4.269	.....
24	Cobaltocobaltic oxide	Co <sub>3</sub> O <sub>4</sub> .....	241.00	5.8–6.3	.....
25	Cobaltous acetate...	Co(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .4H <sub>2</sub> O ..	249.11	1.7043 <sup>18.7°</sup>	.....
26	am. chloride .....	CoCl <sub>2</sub> .NH <sub>4</sub> Cl.6H <sub>2</sub> O ..	291.52	.....	.....
27	“ sulphate.....	CoSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 6H <sub>2</sub> O	395.36	1.90218°	.....
28	arsenate.....	Co <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> .8H <sub>2</sub> O....	599.13	2.948	.....
29	arsenite.....	Co <sub>3</sub> H <sub>6</sub> (AsO <sub>3</sub> ) <sub>4</sub> .H <sub>2</sub> O ..	693.06	.....	.....
30	bromate.....	Co(BrO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	455.02	.....	.....
31	bromide.....	CoBr <sub>2</sub> .....	218.92	4.909 <sup>‡</sup>	.....
32	“ .....	CoBr <sub>2</sub> .6H <sub>2</sub> O.....	327.02	.....	100°
33	carbonate.....	CoCO <sub>3</sub> .....	119.00	.....	decomp.
34	“ basic .....	2CoCO <sub>3</sub> .3Co(OH) <sub>2</sub> ..	517.05	.....	.....
35	chlorate.....	Co(ClO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	334.00	.....	50°
36	chloride.....	CoCl <sub>2</sub> .....	129.90	2.937	sublimes
37	“ .....	CoCl <sub>2</sub> .6H <sub>2</sub> O.....	238.00	1.84	86.75°
38	chromate.....	CoCrO <sub>4</sub> .....	175.10	.....	decomp.
39	cyanide.....	Co(CN) <sub>2</sub> .2H <sub>2</sub> O.....	147.11	.....	2H <sub>2</sub> O, 280°

\* Decomposes at 100°.

Number.	Boiling Point, °C.	Solubility in 100 parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		v. soluble			crystalline.....
2		s. soluble		insol. al.; sol. hot HCl..	green crystals..
3		decomp.		soluble acids.....	yellow brown..
4		v. soluble			
5		12.35°		s. soluble alcohol.....	blue.....
6		insoluble		v. soluble acids.....	black powder..
7	115.9°	decomp.			dark red.....
8		insoluble	insoluble	soluble acids.....	
9		insoluble	insoluble	sol. conc. HNO <sub>3</sub> .....	small needles..
10		decomp.	decomp.	soluble HNO <sub>3</sub> .....	prisms.....
11		soluble	soluble		
12		soluble		soluble acids, alcohol..	
13		v. soluble		soluble acids; insol. al.	green crystals..
14		0.232°	1.031 <sup>46.6°</sup>	insoluble alcohol.....	
15		4.26°	12.74 <sup>46.6°</sup>	insoluble al., NH <sub>3</sub> aq...	
16		16.12°	24.87 <sup>16.19°</sup>	s. soluble HCl.....	brick red.....
17		decomp.			
18		insoluble	insoluble	insol.al.; sol.conc.cold a.	black.....
19	heat	insoluble	insoluble	soluble conc. acids.....	steel gray.....
20		s. soluble		insol. alcohol, ether....	yellow prisms..
21		sol. with dec.		soluble conc., H <sub>2</sub> SO <sub>4</sub> ...	blue cryst. pow- [der
22		insoluble		decomp. by acids.....	black crystals..
23		insoluble		sol. HNO <sub>3</sub> , aqua regia..	black.....
24		insoluble	insoluble	sol. conc. H <sub>2</sub> SO <sub>4</sub> .....	black.....
25		soluble			red needles....
26		deliques.	v. soluble		ruby red.....
27		20.5 <sup>20°</sup>	45.4 <sup>80°</sup>	insoluble alcohol.....	
28		insoluble	insoluble	soluble acids, NH <sub>3</sub> aq...	reddish monocl.
29		insoluble		soluble acids.....	rose red.....
30		45.5 <sup>17°</sup>		soluble NH <sub>3</sub> aq.....	hyacinth. octa..
31		soluble		soluble alcohol, ether..	
32		deliques.	soluble	soluble alcohol, ether..	green.....
33		insoluble	insoluble	insol. conc. HCl, HNO <sub>3</sub>	red rhombohed.
34		insoluble	decomp.	sol. (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .....	red colored....
35	*	deliques.	soluble	soluble alcohol.....	regular.....
36		45 <sup>7°</sup>	105 <sup>96°</sup>	31 al., 8.62 acetone....	blue crystals...
37	†	v. soluble	v. soluble	v. sol. ether, glycoll....	red monoclinic.
38		insoluble		sol. a., NH <sub>3</sub> aq.....	yellowish-brown
39		insoluble		sol. KCN, HCl, NH <sub>3</sub> aq.	buff colored...

† Loses 6H<sub>2</sub>O at 110°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Cobaltous ferricyanide.	Co <sub>3</sub> [Fe(CN) <sub>6</sub> ] <sub>2</sub> . . . . .	601.28	.....	.....
2	ferrocyanide . . . . .	Co <sub>2</sub> Fe(CN) <sub>6</sub> .7H <sub>2</sub> O . . .	456.25	.....	.....
3	fluoride . . . . .	CoF <sub>2</sub> .2H <sub>2</sub> O . . . . .	133.03	4.43 *	.....
4	" . . . . .	CoF <sub>2</sub> .5HF.6H <sub>2</sub> O . . . . .	305.13	2.086	.....
5	hydroxide . . . . .	Co(OH) <sub>2</sub> . . . . .	93.02	3.597 <sup>15°</sup>	.....
6	iodate . . . . .	Co(IO <sub>3</sub> ) <sub>2</sub> . . . . .	408.94	5.008 <sup>18°</sup>	.....
7	iodide . . . . .	CoI <sub>2</sub> . . . . .	312.94	.....	.....
8	" . . . . .	CoI <sub>2</sub> .2H <sub>2</sub> O . . . . .	348.97	.....	.....
9	" . . . . .	CoI <sub>2</sub> .6H <sub>2</sub> O . . . . .	421.04	.....	.....
10	nitrate . . . . .	Co(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O . . . . .	291.18	1.83 <sup>14°</sup>	56°
11	oxalate . . . . .	CoC <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O . . . . .	183.03	2.325 <sup>19°</sup> *	.....
12	oxide . . . . .	CoO . . . . .	75.00	5.6–5.75	.....
13	phosphate . . . . .	Co <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> . . . . .	367.00	.....	.....
14	" . . . . .	Co <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .3H <sub>2</sub> O . . . . .	421.05	.....	.....
15	phosphite . . . . .	CoHPO <sub>3</sub> .2H <sub>2</sub> O . . . . .	175.04	.....	blue at 250
16	potass. carbonate . . .	CoCO <sub>3</sub> .KHCO <sub>3</sub> .4H <sub>2</sub> O . . .	291.22	.....	.....
17	selenide . . . . .	CoSe . . . . .	138.20	7.65	red heat
18	silicate . . . . .	Co <sub>2</sub> SiO <sub>4</sub> . . . . .	210.4	4.63	.....
19	sulphate . . . . .	CoSO <sub>4</sub> . . . . .	155.06	3.472 <sup>15°</sup>	989°
20	" . . . . .	CoSO <sub>4</sub> .7H <sub>2</sub> O . . . . .	281.17	1.918 <sup>15°</sup>	96.8°
21	sulphide . . . . .	CoS . . . . .	91.06	5.45	.....
22	sulphite . . . . .	CoSO <sub>3</sub> .5H <sub>2</sub> O . . . . .	229.14	.....	.....
23	Columbic Acid . . . . .	3Cb <sub>2</sub> O <sub>5</sub> .7H <sub>2</sub> O . . . . .	930.11	.....	.....
24	Columbium (Niobium)	Cb . . . . .	94.0	7.06 <sup>†</sup>	1950° § . . .
25	bromide . . . . .	CbBr <sub>5</sub> . . . . .	493.80	.....	.....
26	chloride penta- . . . .	CbCl <sub>5</sub> . . . . .	271.25	.....	194°
27	hydride . . . . .	CbH . . . . .	95.01	6–6.6	decomp.
28	nitride . . . . .	CbN . . . . .	108.04	.....	.....
29	oxalate . . . . .	Cb(HC <sub>2</sub> O <sub>4</sub> ) <sub>5</sub> . . . . .	539.04	.....	.....
30	oxide mon- . . . . .	CbO . . . . .	220.00	6.3–6.67	.....
31	" di- . . . . .	CbO <sub>2</sub> . . . . .	126.00	.....	.....
32	" pent- . . . . .	Cb <sub>2</sub> O <sub>5</sub> . . . . .	268.00	4.4–4.53	.....
33	oxybromide . . . . .	CbOBr <sub>3</sub> . . . . .	349.88	.....	sublimes
34	oxychloride . . . . .	CbOCl <sub>3</sub> . . . . .	216.35	.....	subl. 400°
35	oxysulphide . . . . .	Cb <sub>2</sub> OS <sub>3</sub> . . . . .	300.18	.....	.....
36	Copper . . . . .	Cu . . . . .	63.6	8.91–8.96	1084° ¶
37	boride . . . . .	Cu <sub>3</sub> B <sub>2</sub> . . . . .	212.8	8.116	.....
38	hydride . . . . .	Cu <sub>2</sub> H <sub>2</sub> . . . . .	129.22	.....	dec. 60°
39	nitride . . . . .	Cu <sub>3</sub> N . . . . .	204.84	.....	dec. 300°

\* Density of the anhydrous salt.

† Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		insoluble	.....	insol. HCl; sol. $\text{NH}_3$ aq.	red.....
2		insoluble	.....	insol. HCl; sol. KCN...	gray-green....
3		soluble	decomp.	soluble HF.....	rose red cryst..
4		.....	.....	.....	trimetric prisms
5		insoluble	insoluble	insol. alk.; sol. $\text{NH}_4$ salts	rose red.....
6	0.415°		1.33100°	soluble HCl, $\text{HNO}_3$ ...	.....
7	159°		420100°	v. soluble alcohol.....	.....
8		deliques	.....	.....	green.....
9		.....	.....	.....	red.....
10	†	v. soluble	.....	10012.5° alcohol.....	red monoclinic.
11		insoluble	.....	sol. a., $\text{NH}_3$ aq.....	reddish-white..
12		insoluble	insoluble	sol. a., $\text{NH}_3$ aq.; insol. al.	greenish brown.
13		insoluble	insoluble	sol. $\text{H}_3\text{PO}_4$ , $\text{NH}_3$ aq.....	reddish.....
14		insoluble	.....	soluble $\text{H}_3\text{PO}_4$ .....	.....
15		.....	.....	.....	reddish..[cryst.
16		decomp.	.....	.....	rose colored
17		.....	.....	.....	yellow crystals.
18		insoluble	.....	decomp. by HCl.....	violet.....
19	26.23°		82.6100°	1.0418° methyl alcohol.	red powder....
20	44.6°		150100°	2.53° alcohol.....	†
21		insoluble	.....	sol. conc. HCl, aq. r., al.	brown needles.
22		insoluble	.....	soluble $\text{H}_2\text{SO}_3$ ... [ $\text{H}_2\text{SO}_4$	red.....
23		insoluble	.....	sol. KOH, HF, conc.	.....
24		insoluble	insoluble	{ s.sol.HCl, $\text{HNO}_3$ , aq. r. { sol. hot conc. $\text{H}_2\text{SO}_4$ ..	steel gray.....
25		.....	.....	.....	purple red.....
26	240.5°	decomp.	.....	sol. $\text{CCl}_4$ , al. conc. HCl..	yellow needles.
27		.....	.....	sol. HF; insol. acids....	gray powder...
28		.....	.....	insol. $\text{HNO}_3$ ; sol. HF + $\text{HNO}_3$	black.....
29		decomp.	decomp.	dec. al.; sol. $\text{H}_2\text{C}_2\text{O}_4$ ....	monoclinic.....
30		.....	.....	..... [ $\text{H}_2\text{SO}_4$	regular.....
31		insoluble	.....	insol. $\text{HNO}_3$ ; sol. conc.	black.....
32		insoluble	.....	sol. conc. $\text{H}_2\text{SO}_4$ , HF...	crystalline.....
33		decomp.	.....	soluble conc. acids.....	yellow crystals.
34		decomp.	.....	sol. $\text{H}_2\text{SO}_4$ , alcohol....	needles.....
35		insoluble	.....	sol. conc. $\text{H}_2\text{SO}_4$ . [ $\text{H}_2\text{SO}_4$	black.....
36	2100°	insoluble	insoluble	sol. $\text{HNO}_3$ , hot conc.	red crystalline.
37		.....	.....	.....	yellow.....
38		.....	.....	soluble HCl.....	reddish brown.
39		.....	.....	decomp. by acids.....	.....

† Carmine red rhomb. or monocl. Burns in the air. † Melts at 1065° in the air.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Copper peroxide.....	$\text{CuO}_2 \cdot \text{H}_2\text{O}$ .....	113.62	.....	.....
2	suboxide.....	$\text{Cu}_4\text{O}$ .....	270.40	.....	oxidizes
3	Cupric acetate.....	$\text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot \text{H}_2\text{O}$ ..	199.66	1.9	dec. 240°
4	aceto-arsenite.....	$(\text{CuOAs}_2\text{O}_3)_3 \cdot \text{Cu}$ $(\text{C}_2\text{H}_3\text{O}_2)_3$	966.45	.....	.....
5	ammonium chloride.	$\text{CuCl}_2 \cdot 2\text{NH}_4\text{Cl} \cdot 2\text{H}_2\text{O}$	277.58	1.96–1.97	2H <sub>2</sub> O, 120°
6	“ sulphate....	$\text{CuSO}_4 \cdot 4\text{NH}_3 \cdot \text{H}_2\text{O}$ ..	245.93	.....	decomp.
7	arsenate.....	$\text{Cu}_3(\text{AsO}_4)_2 \cdot 4\text{H}_2\text{O}$ ..	540.86	.....	.....
8	arsenate, acid.....	$\text{Cu}_5\text{H}_2(\text{AsO}_4)_4 \cdot 2\text{H}_2\text{O}$	912.05	.....	.....
9	arsenide.....	$\text{Cu}_3\text{As}_2$ .....	468.00	7.56	decomp.
10	arsenite (Paris green)	$\text{CuHAsO}_3$ .....	187.61	.....	decomp.
11	bromate.....	$\text{Cu}(\text{BrO}_3)_2 \cdot 5\text{H}_2\text{O}$ ..	409.60	2.583	5H <sub>2</sub> O, 200°
12	bromide.....	$\text{CuBr}_2$ .....	223.52	.....	decomp.
13	Cupric carbonate basic.	$\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$ ..	221.22	3.7–4.0	decomp.
14	“ “ “...	$2\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$ ..	344.82	3.88	decomp.
15	chlorate.....	$\text{Cu}(\text{ClO}_3)_2 \cdot 6\text{H}_2\text{O}$ ....	338.60	.....	65°
16	chloride.....	$\text{CuCl}_2$ .....	134.50	3.054	498°
17	“.....	$\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$ .....	170.53	2.47–2.535	2H <sub>2</sub> O, 100°
18	chromate, basic....	$\text{CuCrO}_4 \cdot 2\text{CuO} \cdot 2\text{H}_2\text{O}$	374.93	.....	2H <sub>2</sub> O, 260°
19	cyanide.....	$\text{Cu}(\text{CN})_2$ .....	115.68	.....	easily dec.
20	dichromate.....	$\text{CuCr}_2\text{O}_7 \cdot 2\text{H}_2\text{O}$ ....	315.83	.....	.....
21	fluoride.....	$\text{CuF}_2 \cdot 2\text{H}_2\text{O}$ .....	137.63	.....	.....
22	fluosilicate.....	$\text{CuSiF}_6 \cdot 6\text{H}_2\text{O}$ .....	314.10	2.182.....	.....
23	ferricyanide.....	$\text{Cu}_3[\text{Fe}(\text{CN})_6]_2$ .....	678.68	.....	.....
24	ferrocyanide.....	$\text{Cu}_2\text{Fe}(\text{CN})_6 \cdot 7\text{H}_2\text{O}$ ..	465.45	.....	.....
25	formate.....	$\text{Cu}(\text{CHO}_2)_2$ .....	153.62	1.831	.....
26	hydroxide.....	$\text{Cu}(\text{OH})_2$ .....	97.62	3.368	decomp.
27	iodate.....	$\text{Cu}(\text{IO}_3)_2$ .....	413.54	5.241 <sup>15°</sup>	decomp.
28	“.....	$\text{Cu}(\text{IO}_3)_2 \cdot \text{H}_2\text{O}$ .....	431.56	4.876 <sup>15°</sup>	dec. 290°
29	“.....	$\text{Cu}(\text{IO}_3)_2 \cdot 2\text{H}_2\text{O}$ ....	449.57	.....	decomp.
30	“ basic.....	$\text{CuOHIO}_3$ .....	255.58	4.878 <sup>15°</sup>	dec. 290°
31	lactate.....	$\text{Cu}(\text{C}_3\text{H}_5\text{O}_3)_2 \cdot 2\text{H}_2\text{O}$ ..	277.71	.....	.....
32	nitro prusside.....	$\text{CuFe}(\text{CN})_5\text{NO} \cdot 2\text{H}_2\text{O}$	331.77	.....	.....
33	nitrate.....	$\text{Cu}(\text{NO}_3)_2 \cdot 3\text{H}_2\text{O}$ ....	241.73	2.174	114.5°
34	“.....	$\text{Cu}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ ....	295.78	2.074	26.4°
35	oxalate.....	$\text{CuC}_2\text{O}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ ....	160.61	.....	.....
36	oxide.....	$\text{CuO}$ .....	79.60	6.32–6.43	.....
37	oxychloride.....	$\text{CuCl}_2 \cdot 2\text{CuO} \cdot 4\text{H}_2\text{O}$ ..	429.36	.....	3H <sub>2</sub> O, 140°
38	periodate.....	$\text{Cu}_2\text{HIO}_6$ .....	351.18	.....	dec. 110°

\* Decomposes at 100°.

† Decomposes at red heat.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk., etc.)	
1	.....	insoluble	.....	soluble acids.....	olive green.....
2	.....	insoluble	.....	decomp. by acids.....	olive green.....
3	.....	7.2	20	7.143 alcohol; sol. ether	dark green
4	.....	insoluble	.....	sol. acids $\text{NH}_3$ aq.....	green [bic monocl.
5	.....	v. soluble	.....	soluble alcohol.....	light blue rhom-
6	.....	18.5 <sup>21.5°</sup>	decomp.	insoluble alcohol.....	.....
7	.....	insoluble	.....	soluble acids, $\text{NH}_3$ aq..	bluish green...
8	.....	insoluble	.....	soluble acids, $\text{NH}_3$ aq..	blue.....
9	.....	insoluble	insoluble	soluble $\text{HNO}_3$ , aq. r....	bluish octahed.
10	.....	insoluble	.....	soluble acids, $\text{NH}_3$ aq..	light green.....
11	.....	v. soluble	.....	.....	blue green crys.
12	.....	v. soluble	.....	insoluble benzene.....	iodine col. crys.
13	.....	insoluble	decomp.	0.026, $\text{CO}_2$ aq.; sol. KCN	dark gr. mo'cl.
14	.....	insoluble	decomp.	sol. $\text{NH}_3$ aq., hot $\text{NaHCO}_3$ aq.	blue monoclinic
15*	.....	deliques.	v. soluble	soluble alcohol.....[al.	green octahedra
16	decomp.	75.5 <sup>17°</sup>	81 <sup>31.5°</sup>	53 <sup>15.5°</sup> al., 68 <sup>15.5°</sup> methyl	brownish yellow
17†	.....	121.4 <sup>16.1°</sup>	v. soluble	sol. $\text{NH}_4\text{Cl}$ , ether, al....	blue rhombic..
18	.....	insoluble	.....	soluble $\text{HNO}_3$ , $\text{NH}_3$ aq..	yellowish-brown
19	.....	insoluble	.....	sol. KCN.....	yellowish-green.
20	.....	deliques.	decomp.	sol alcohol, $\text{NH}_3$ aq.....	black crystals..
21	.....	s. soluble	decomp.	sol. al., $\text{HCl}$ , $\text{HNO}_3$ , $\text{HF}$	pale blue mono.
22	.....	2.32 <sup>17°</sup>	.....	0.16 <sup>20°</sup> alcohol.....	blue.....
23	.....	insoluble	.....	insol. $\text{HCl}$ ; sol. $\text{NH}_3$ aq.	yellowish-green.
24	.....	insoluble	.....	insol. acids; sol. $\text{NH}_3$ aq.	brown red.....
25	.....	12.5–25	decomp.	0.25 alcohol.....[KCN	blue monoclinic
26	.....	insoluble	decomp.	sol. al., $\text{NH}_4\text{Cl}$ , $\text{Na}_2\text{S}_2\text{O}_3$ ,	blue crystals...
27	.....	insoluble	insoluble	sol. dil. $\text{H}_2\text{SO}_4$ ; insol. dil.	green mono-
28	.....	insoluble	insoluble	$\text{HNO}_3$ [HNO <sub>3</sub>	clinic plates
29	.....	0.33 <sup>15°</sup>	0.65 <sup>100°</sup>	sol. dil. $\text{H}_2\text{SO}_4$ ; insol. dil.	blue triclinic...
30	.....	insoluble	insoluble	sol. $\text{HCl}$ , $\text{NH}_3$ aq.....	greenish blue..
31	.....	16.7	45 <sup>100°</sup>	sol. dil. $\text{H}_2\text{SO}_4$ .....	gr. orthorhomb.
32	.....	insoluble	.....	0.9 cold, 4 hot alcohol.	dark blue mono.
33	.....	insoluble	.....	decomp. by alkalies....	greenish.....
33‡	.....	v. soluble	.....	100 <sup>12.5°</sup> alcohol.....	blue prismatic.
34§	.....	v. soluble	v. soluble	soluble alcohol	crystalline.....
35	.....	insoluble	.....	insol. $\text{H.C}_2\text{H}_3\text{O}_2$ .....	bluish-white...
36	.....	hygroscopic	.....	sol. acids, $\text{NH}_4\text{Cl}$ , KCN.	black monocl..
37	.....	insoluble	.....	soluble acids.....	blue green.....
38	100–120°	insoluble	insoluble	sol. dil. $\text{HNO}_3$ .....	green powder..

‡ Decomposes at 170°.

§ Decomposes at 65°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Cupric phosphate...	$\text{Cu}_3(\text{PO}_4)_2 \cdot 3\text{H}_2\text{O}$ ...	434.85	.....	.....
2	phosphide.....	$\text{Cu}_3\text{P}_2$ .....	252.80	6.67	.....
3	phosphite.....	$\text{CuHPO}_3 \cdot 2\text{H}_2\text{O}$ .....	179.64	.....	decomp.
4	salicylate.....	$\text{Cu}(\text{C}_7\text{H}_5\text{O}_3)_2 \cdot 4\text{H}_2\text{O}$ ...	320.70	.....	.....
5	sulphate.....	$\text{CuSO}_4$ .....	159.66	3.516 <sup>30°</sup>	.....
6	".....	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .....	249.74	2.284 <sup>15°</sup>	4H <sub>2</sub> O, 110°
7	sulphide.....	$\text{CuS}$ .....	95.66	3.8–4.16	.....
8	tartrate.....	$\text{CuC}_4\text{H}_4\text{O}_6 \cdot 3\text{H}_2\text{O}$ .....	265.68	.....	decomp.
9	Cuprous ammonium iodide	$\text{CuI} \cdot \text{NH}_4\text{I} \cdot \text{H}_2\text{O}$ .....	353.63	.....	.....
10	bromide.....	$\text{Cu}_2\text{Br}_2$ .....	287.12	4.72	504°
11	carbonate.....	$\text{Cu}_2\text{CO}_3$ .....	123.6	.....	decomp.
12	chloride.....	$\text{Cu}_2\text{Cl}_2$ .....	198.10	3.38–3.68	434°
13	cyanide.....	$\text{Cu}_2(\text{CN})_2$ .....	179.28	.....	.....
14	fluoride.....	$\text{Cu}_2\text{F}_2$ .....	165.20	.....	908°
15	ferricyanide.....	$\text{Cu}_3\text{Fe}(\text{CN})_6$ .....	402.94	.....	.....
16	ferrocyanide.....	$\text{Cu}_4\text{Fe}(\text{CN})_6$ .....	466.54	.....	.....
17	hydroxide.....	$\text{CuOH}$ .....	80.61	.....	$\frac{1}{2}\text{H}_2\text{O}$ , 360°
18	iodide.....	$\text{Cu}_2\text{I}_2$ .....	381.14	5.29–5.65 <sup>15°</sup>	628°
19	oxide.....	$\text{Cu}_2\text{O}$ .....	143.20	5.75–6.09	red heat
20	phosphide.....	$\text{Cu}_6\text{P}_2$ .....	443.60	6.35–6.75	.....
21	sulphide.....	$\text{Cu}_2\text{S}$ .....	159.26	5.52–5.82	1100°
22	sulphite.....	$\text{Cu}_2\text{SO}_3 \cdot \text{H}_2\text{O}$ .....	225.28	3.83–4.46	.....
23	sulphocyanate.....	$\text{CuCNS}$ .....	121.70	.....	.....
24	Cyanic acid.....	$\text{CNOH}$ .....	43.05	1.140 <sup>8</sup>	.....
25	Cyanogen.....	$\text{C}_2\text{N}_2$ .....	52.08	1.8064A.	–39°
26	bromide.....	$\text{CNBr}$ .....	106.00	3.607D	52°
27	chloride.....	$\text{CNCl}$ .....	61.49	2.13D	–18°
28	".....	$(\text{CN})_3\text{Cl}_3$ .....	184.47	1.32	145°
29	iodide.....	$\text{CNI}$ .....	153.01	1.85	146.5°
30	sulphide.....	$(\text{CN})_2\text{S}$ .....	84.14	.....	60°
31	Erbium.....	$\text{Er}$ .....	166.	4.77	.....
32	chloride.....	$\text{ErCl}_3 \cdot 6\text{H}_2\text{O}$ .....	380.45	.....	.....
33	nitrate.....	$\text{Er}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$ .....	460.22	.....	.....
34	oxide.....	$\text{Er}_2\text{O}_3$ .....	380.00	8.640	infusible
35	sulphate.....	$\text{Er}_2(\text{SO}_4)_3$ .....	620.18	3.678	dec. 950°
36	".....	$\text{Er}_2(\text{SO}_4)_3 \cdot 8\text{H}_2\text{O}$ .....	764.31	3.180	.....
37	Ferric acetate, basic	$\text{FeOH}(\text{C}_2\text{H}_3\text{O}_2)_2$ .....	190.96	.....	.....
38	arsenate.....	$\text{FeAsO}_4 \cdot 2\text{H}_2\text{O}$ .....	230.93	3.18	.....
39	arsenite basic.....	$2\text{FeAsO}_3 \cdot \text{Fe}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$	607.68	.....	decomp.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	insoluble	.....	soluble acids, $\text{NH}_3\text{aq.}$ ...	blue green. ....
2	.....	insoluble	.....	insol. $\text{HCl}$ ; sol. $\text{HNO}_3$ ...	black. ....
3	.....	insoluble	insoluble	.....	.....[needles
4	.....	v. soluble	.....	v. soluble alcohol. ....	bluish green
5	.....	20 <sup>00</sup>	194 <sup>100</sup>	insoluble. ....	.....
6	5 $\text{H}_2\text{O}$ , 230°	31.61 <sup>00</sup>	203.31 <sup>00</sup>	insoluble alcohol... [ $\text{K}_2\text{S}$	blue triclinic...
7	.....	0.0001	.....	sol. $\text{HNO}_3$ , $\text{KCN}$ ; insol.	black. ....
8	.....	0.06	0.3	.....	light green. ....
9	.....	decomp.	decomp.	soluble $\text{NH}_4\text{I}$ .....	rhombic plates
				[ $\text{NH}_4\text{Cl}$	or prisms ...
10	861–954°	insoluble	.....	sol. $\text{HBr}$ , $\text{HCl}$ , $\text{NH}_3\text{aq.}$ ,	.....
11	.....	insoluble	.....	sol. acids, $\text{NH}_3\text{aq.}$ .....	yellow. ....
12	954–1032°	insoluble	.....	sol. $\text{HCl}$ , $\text{NH}_3\text{aq.}$ , $\text{NH}_4\text{Cl}$	tetrahedral. ....
13	red heat	insoluble	.....	sol. $\text{HCl}$ , $\text{NH}_3\text{aq.}$ , $\text{KCN}$	monoclinic. ....
14	.....	insoluble	.....	sol. $\text{HNO}_3$ , conc. $\text{HCl}$ ;	red crystalline .
				insol. al. ....	
15	.....	insoluble	.....	sol. $\text{NH}_3\text{aq.}$ ; insol. $\text{HCl}$ .	brownish red ..
16	.....	insoluble	.....	sol. $\text{NH}_3\text{aq.}$ , insol. $\text{NH}_4\text{Cl}$	brown red. ....
17	.....	insoluble	insoluble	sol. acids, $\text{NH}_3\text{aq.}$ .....	yellow. ....
18	759–772°	0.0008 <sup>18</sup>	.....	insol. a., al.; sol. $\text{KI}$ ....	.....
19	.....	insoluble	insoluble	sol. $\text{NH}_3\text{aq.}$ , $\text{NH}_4\text{Cl}$ , $\text{HCl}$	carmine (red) ..
20	.....	insoluble	.....	sol. $\text{HNO}_3$ ; insol. $\text{HCl}$ ..	gray black. ....
21	.....	insoluble	.....	soluble $\text{HNO}_3$ . [al., ether	rhomb. or reg. .
22	.....	s. soluble	.....	sol. $\text{NH}_3\text{aq.}$ , $\text{HCl}$ ; insol.	red. ....
23	.....	insoluble	.....	sol. $\text{NH}_3\text{aq.}$ .....	.....
24	.....	decomp.	.....	.....	.....
25	–22°	25 c.c.	.....	4.4 c.c.al., sol. ether...	.....
26	61.3°	v. soluble	.....	v. soluble alcohol. ....	regular. ....
27	15.5°	soluble	.....	v. soluble al., ether. ....	prisms. ....
28	.....	.....	.....	.....	.....
29	.....	soluble	.....	v. soluble al., ether. ....	needles. ....
30	.....	v. soluble	.....	v. sol. al., ether. ....	rhombic tablets.
31	.....	.....	.....	.....	.....
32	.....	deliques.	soluble	soluble alcohol. ....	.....
33	.....	soluble	.....	soluble alcohol. ....	crystals. ....
34	.....	insoluble	.....	soluble hot acids. ....	.....
35	.....	43	.....	.....	.....
36	.....	30 <sup>20</sup>	100 <sup>100</sup>	.....	.....
37	.....	insoluble	.....	soluble alcohol, acids...	amorphous ....
38	.....	insoluble	insoluble	soluble $\text{HCl}$ .....	+ 4 $\text{H}_2\text{O}$ , rhomb.
39	.....	decomp.	.....	soluble alkalies. ....	brown to yellow

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water= 1. Air= 1(A). H <sub>2</sub> = 1(D).	Melting Point, °C.
1	Ferric bromide.....	FeBr <sub>3</sub> .....	295.78	.....	*
2	chloride.....	FeCl <sub>3</sub> .....	162.25	2.804 <sup>10.8°</sup>	301°
3	".....	FeCl <sub>3</sub> .6H <sub>2</sub> O.....	270.35	.....	37°
4	ferrocyanide (Prus- sian blue)	Fe <sub>4</sub> [Fe(CN) <sub>6</sub> ] <sub>3</sub> .....	860.02	.....	decomp.
5	fluoride.....	FeF <sub>3</sub> .....	112.90	3.18	.....
6	".....	FeF <sub>3</sub> .4½H <sub>2</sub> O.....	193.97	.....	3H <sub>2</sub> O,100°
7	formate.....	Fe(CHO <sub>2</sub> ) <sub>3</sub> .H <sub>2</sub> O.....	208.94	.....	.....
8	hydroxide.....	Fe(OH) <sub>3</sub> .....	106.92	3.4-3.9	1½H <sub>2</sub> O,500
9	lactate.....	Fe(C <sub>3</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>3</sub> .....	275.02	.....	.....
10	nitrate.....	Fe(NO <sub>3</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	404.16	1.6835 <sup>20°</sup>	47.2°
11	oxalate.....	Fe <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .....	375.80	.....	dec. 100°
12	oxide.....	Fe <sub>2</sub> O <sub>3</sub> .....	159.80	5.12-5.24	.....
13	phosphate.....	FePO <sub>4</sub> .4H <sub>2</sub> O.....	222.96	2.87	.....
14	pyrophosphate....	Fe <sub>4</sub> (P <sub>2</sub> O <sub>7</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	907.74	.....	.....
15	sulphate.....	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	399.98	3.097 <sup>18°</sup>	.....
16	".....	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	562.12	2-2.1	.....
17	sulphide.....	Fe <sub>2</sub> S <sub>3</sub> .....	207.98	4.25-4.41	decomp.
18	sulphocyanate.....	Fe(CNS) <sub>3</sub> .3H <sub>2</sub> O.....	284.25	.....	.....
19	Ferrous acetate.....	Fe(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	246.01	.....	decomp.
20	ammonium sulphate	FeSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 6H <sub>2</sub> O	392.26	1.865	.....
21	arsenate.....	Fe <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	553.80	.....	.....
22	arsenite.....	Fe <sub>2</sub> As <sub>2</sub> O <sub>5</sub> .....	341.8	.....	.....
23	bromide.....	FeBr <sub>2</sub> .....	315.82	4.636 <sup>¾</sup>	.....
24	".....	FeBr <sub>2</sub> .6H <sub>2</sub> O.....	323.92	.....	27°
25	carbonate.....	FeCO <sub>3</sub> .....	115.9	3.70-3.87	decomp.
26	".....	FeCO <sub>3</sub> .H <sub>2</sub> O.....	133.92	.....	decomp.
27	chloride.....	FeCl <sub>2</sub> .....	126.80	2.988 <sup>17.9°</sup>	.....
28	".....	FeCl <sub>2</sub> .4H <sub>2</sub> O.....	198.86	1.93	red heat
29	chloroplatinate....	FePtCl <sub>6</sub> .6H <sub>2</sub> O.....	571.50	2.714	.....
30	ferricyanide (Turn- bull's blue)	Fe <sub>3</sub> [Fe(CN) <sub>6</sub> ] <sub>2</sub> .....	591.98	.....	decomp.
31	ferrocyanide.....	Fe <sub>2</sub> Fe(CN) <sub>6</sub> .....	323.94	.....	.....
32	fluoride.....	FeF <sub>2</sub> .8H <sub>2</sub> O.....	238.03	4.09 §	8H <sub>2</sub> O,100°
33	formate.....	Fe(CHO <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	181.95	.....	decomp.
34	hydroxide.....	Fe(OH) <sub>2</sub> .....	89.92	.....	.....
35	iodide.....	FeI <sub>2</sub> .4H <sub>2</sub> O.....	381.90	2.873	177°§
36	lactate.....	Fe(C <sub>3</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O.....	288.03	.....	decomp.
37	nitrate.....	Fe(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	288.08	.....	60.5°
38	oxalate.....	FeC <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O.....	179.93	.....	†

\* Sublimes and dec. † Red hexag., rhombohed. or reg. ‡ Grayish rhombohed

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	soluble	soluble	soluble alcohol, ether ..	dark red crystals
2	.....	158.7	536.6	v. sol. al., ether + HCl	brown hexagon.
3	280–285°	211.6	625.8	soluble alcohol. ....	.....
4	.....	insoluble	.....	{ insol. al., ether; sol. { conc. HCl, H <sub>2</sub> SO <sub>4</sub>	dark blue cryst.
5	.....	s. soluble	soluble	insol. al., ether; sol. a...	crystals .....
6	decomp.	s. soluble	soluble	insoluble alcohol. ....	yellow crystals.
7	.....	soluble	decomp.	.....	yellow crystals.
8	.....	insoluble	insoluble	insoluble alcohol, ether.	reddish brown .
9	.....	deliques.	v. soluble	insoluble ether. ....	brown amorph.
10	decomp.	v. soluble	v. soluble	soluble alcohol. ....	rhombic. ....
11	.....	v. soluble	.....	insoluble alcohol. ....	amorphous ....
12	.....	hygroscopic.	insoluble	soluble acids. ....	† [or monocl.
13	.....	insoluble	0.067	insol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> . ....	yellow rhombic
14	.....	insoluble	.....	soluble acids. ....	yellow. ....
15	.....	s. soluble	decomp.	insol. conc. H <sub>2</sub> SO <sub>4</sub> . ....	amorphous. ....
16	.....	v. soluble	decomp.	dec. by al.; sol. ab. al. .	yellow rhombic
17	.....	decomposes	.....	decomposed by acids...	greenish yellow.
18	.....	v. soluble	.....	v. soluble alcohol, ether	blackish red reg.
19	.....	v. soluble	.....	.....	needles. ....
20	.....	180°	78.275°	insoluble alcohol. ....	blue green mon- oclinic. ....
21	.....	insoluble	.....	s. soluble NH <sub>3</sub> aq. ....	.....
22	.....	insoluble	.....	soluble NH <sub>3</sub> aq. ....	greenish white.
23	.....	soluble	.....	soluble alcohol. ....	.....
24	.....	soluble	v. soluble	soluble alcohol. ....	yellow rhombic.
25	.....	insoluble	insoluble	soluble CO <sub>2</sub> aq. ....	†
26	.....	s. soluble	.....	soluble acids, CO <sub>2</sub> aq. ....	amorphous ....
27	.....	5018.75°	.....	100 alcohol. ....	.....
28	.....	147	v. soluble	soluble alcohol. ....	blue gr. mono..
29	.....	v. soluble	v. soluble	.....	yellow hexag. .
30	.....	insoluble	.....	insoluble al., dil. acids..	deep blue. .... [orphous
31	.....	insoluble	.....	.....	white-blue am-
32	.....	s. soluble	.....	insol. al., ether; sol. a..	green. ....
33	.....	s. soluble	.....	.....	.....
34	.....	0.00067	.....	soluble NH <sub>4</sub> Cl, acids...	pale green cryst.
35	.....	v. soluble	decomp.	soluble alcohol. ....	green crystals..
36	.....	2.110°	8.5100°	insoluble alcohol. ....	green crystals..
37	.....	200°	30025°	.....	crystals. ....
38	.....	0.022	0.026	sol. acids. ....	yellow crystals.

§ The anhydrous salt.

¶ Decomposes at 160° into 2H<sub>2</sub>O, CO, CO<sub>2</sub>, Fe.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
1	Ferrous oxide.....	FeO.....	71.90	.....	.....
2	perchlorate.....	Fe(ClO <sub>4</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	362.90	.....	dec. < 100
3	phosphate.....	Fe <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .8H <sub>2</sub> O....	501.83	2.680	.....
4	potassium oxalate	K <sub>2</sub> Fe(C <sub>2</sub> O <sub>4</sub> ) <sub>2</sub> .2H <sub>2</sub> O..	346.23	.....	decomp.
5	sulphate.....	FeSO <sub>4</sub> .7H <sub>2</sub> O.....	278.07	1.86–1.90	64°,*
6	sulphide.....	FeS.....	87.96	4.75–5.04	red heat
7	sulphite.....	FeSO <sub>3</sub> .2½H <sub>2</sub> O.....	190.01	.....	dec. 250°
8	sulphocyanate.....	Fe(CNS) <sub>2</sub> .3H <sub>2</sub> O....	226.15	.....	decomp.
9	tartrate.....	FeC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	203.93	.....	.....
10	thiosulphate..[ride	FeS <sub>2</sub> O <sub>3</sub> .5H <sub>2</sub> O.....	258.10	.....	.....
11	Ferroso-ferric chlo-	FeCl <sub>2</sub> .2FeCl <sub>3</sub> .18H <sub>2</sub> O.	613.34	.....	dec. 50°
12	ferricyanide (Prus- sian green)	Fe <sup>'''</sup> <sub>4</sub> Fe <sup>''</sup> <sub>3</sub> [Fe(CN) <sub>6</sub> ] <sub>6</sub> .	1664.1	.....	dec. 180°
13	hydrate.....	Fe <sub>3</sub> O <sub>4</sub> .4H <sub>2</sub> O.....	303.76	.....	decomp.
14	oxide.....	Fe <sub>3</sub> O <sub>4</sub> .....	231.70	4.96–5.40	.....
15	sulphide†.....	Fe <sub>3</sub> S <sub>4</sub> .....	305.94	4.51–4.64	.....
16	Fluorine.....	F <sub>2</sub> .....	38	{ 1.31 <sup>15°</sup> A. 1.14–187°	–223°
17	Fluosilicic Acid.....	H <sub>2</sub> SiF <sub>6</sub> .....	144.42	.....	.....
18	Formic Acid.....	H. COOH.....	46.02	1.225 <sup>‡</sup>	8.6°
19	Gadolinium.....	Gd.....	156	1.31A.....	.....
20	acetate.....	Gd.(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub> .4H <sub>2</sub> O..	405.14	1.611	.....
21	bromide.....	GdBr <sub>3</sub> .6H <sub>2</sub> O.....	503.98	2.844	.....
22	chloride.....	GdCl <sub>3</sub> .6H <sub>2</sub> O.....	370.45	2.424	.....
23	nitrate.....	Gd(NO <sub>3</sub> ) <sub>3</sub> .6½H <sub>2</sub> O....	459.22	2.332	.....
24	oxalate.....	Gd <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .10H <sub>2</sub> O...	756.16	.....	6H <sub>2</sub> O, 110°
25	potassium sulphate	Gd <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .K <sub>2</sub> SO <sub>4</sub> . 2H <sub>2</sub> O	810.57	3.503 <sup>16°</sup>	.....
26	selenate.....	Gd <sub>2</sub> (SeO <sub>4</sub> ) <sub>3</sub> .8H <sub>2</sub> O....	885.73	3.309	8H <sub>2</sub> O, 130°
27	sulphate.....	Gd <sub>2</sub> .(SO <sub>4</sub> ) <sub>3</sub> .....	600.18	4.139 <sup>14.6°</sup>	.....
28	"	Gd <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .8H <sub>2</sub> O....	744.31	3.010	.....
29	Gallium.....	Ga.....	70	5.95 <sup>24°</sup>	30.15°
30	bromide.....	GaBr <sub>3</sub> .....	309.88	.....	.....
31	chloride di-.....	GaCl <sub>2</sub> .....	140.90	.....	164°
32	" tri-.....	GaCl <sub>3</sub> .....	176.35	2.36 <sup>‡‡</sup>	75.5°
33	hydroxide.....	Ga(OH) <sub>3</sub> .....	121.02	.....	.....
34	iodide.....	GaI <sub>3</sub> .....	451.91	.....	.....
35	nitrate.....	Ga(NO <sub>3</sub> ) <sub>3</sub> .....	256.12	.....	dec. 110°
36	oxide mon-.....	GaO.....	86.00	.....	.....
37	" sesqui-.....	Ga <sub>2</sub> O <sub>3</sub> .....	188.00	.....	.....

\* Loses 6H<sub>2</sub>O at 100°, 7H<sub>2</sub>O at 300°.      † For other compounds see "iron."

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	insoluble	.....	sol. acids; insol. alk....	black.....
2	.....	soluble	.....	soluble alcohol.....	green.....
3	.....	insoluble	.....	soluble acids.....	monoclinic.....
4	.....	soluble	soluble	.....	golden needles. [or rhombic
5	.....	60.9 <sup>10°</sup>	333 <sup>100°</sup>	insoluble alcohol.....	blue green mono.
6	.....	s. soluble	.....	soluble acids.....	black hexagonal
7	.....	s. soluble	.....	soluble SO <sub>2</sub> aq.....	.....
8	.....	v. soluble	.....	v. soluble al., ether....	green rhombic..
9	.....	0.877 <sup>15.6°</sup>	.....	.....	crystals.....
10	.....	v. soluble	decomp.	v. soluble alcohol.....	green crystals..
11	.....	deliques.	.....	.....	yellow.....
12	.....	insoluble	.....	sol. conc. hot HCl.....	green.....
13	.....	insoluble	insoluble	soluble acids.....	black.....
14	.....	insoluble	insoluble	insoluble alcohol.....	black octahed..
15	.....	insoluble	.....	soluble acids.....	hexagonal.....
16	-187°	decomp.	decomp.	.....	greenish-yellow.
17	.....	soluble	.....	.....	.....
18	101°	∞	∞	.....	.....
19	.....	.....	.....	.....	.....
20	.....	s. soluble	.....	.....	triclinic.....
21	.....	soluble	soluble	.....	rhombic plates.
22	.....	soluble	soluble	.....	quad. pyramids
23	.....	v. soluble	v. soluble	.....	asymmetrical..
24	.....	0.11	.....	soluble conc. HNO <sub>3</sub> ...	monoclinic.....
25	.....	soluble	soluble	soluble K <sub>2</sub> SO <sub>4</sub> .....	crystalline.....
26	.....	soluble	soluble	.....	pearly monocl..
27	.....	3.98 <sup>0°</sup>	2.26 <sup>34.4°</sup>	.....	.....
28	.....	soluble	soluble	.....	monoclinic.....
29	.....	insoluble	insoluble	soluble acids, alkalies ..	gray octahed..
30	.....	deliques.	soluble	.....	crystalline.....
31	535°	deliques.	decomp.	.....	crystalline.....
32	215-220°	deliques.	decomp.	.....	needles.....
33	.....	insoluble	.....	soluble acids, alkalies ..	.....
34	deliques.	soluble	.....	.....	.....
35	†	deliques.	v. soluble	.....	.....
36	.....	insoluble	.....	soluble acids.....	grayish blue ..
37	.....	insoluble	.....	soluble acids.....	.....

† Converted into Ga<sub>2</sub>O<sub>3</sub> at 200°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
1	Gallium sulphate....	Ga <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	428.18	.....	.....
2	sulphide.....	Ga <sub>2</sub> S <sub>3</sub> .....	236.18	.....	.....
3	Germanium.....	Ge.....	72.5	5.469†‡	900°
4	bromide.....	GeBr <sub>4</sub> .....	392.34	.....	about 0°
5	chloride di-.....	GeCl <sub>2</sub> .....	143.40	.....	.....
6	"    tetra-.....	GeCl <sub>4</sub> .....	214.30	1.88718°	liquid.
7	chloroform.....	GeHCl <sub>3</sub> .....	179.86	.....	liquid.
8	ethide.....	Ge(C <sub>2</sub> H <sub>5</sub> ) <sub>4</sub> .....	188.66	.....	.....
9	fluoride.....	GeF <sub>4</sub> .3H <sub>2</sub> O.....	202.55	.....	decomp.
10	iodide.....	GeI <sub>4</sub> .....	580.38	20.5440°	144°
11	oxide mon-.....	GeO.....	88.50	.....	.....
12	"    di-.....	GeO <sub>2</sub> .....	104.50	4.70318°	.....
13	oxychloride.....	GeOCl <sub>2</sub> .....	159.40	.....	.....
14	sulphide mono-.....	GeS.....	104.56	3.541100°	red heat
15	"    di-.....	GeS <sub>2</sub> .....	136.62	.....	.....
16	Glucinum (Beryllium)	Gl.....	9.1	1.8520°	> 960°
17	bromide.....	GlBr <sub>2</sub> .....	169.02	.....	601°
18	carbide.....	Gl <sub>2</sub> C.....	30.2	1.915°	.....
19	carbonate.....	GlCO <sub>3</sub> .4H <sub>2</sub> O.....	141.16	.....	.....
20	"    basic....	(GlO) <sub>5</sub> .CO <sub>2</sub> .5H <sub>2</sub> O.....	259.58	.....	.....
21	chloride.....	GlCl <sub>2</sub> .....	80.00	.....	400°
22	"    .....	GlCl <sub>2</sub> .4H <sub>2</sub> O.....	152.06	.....	.....
23	fluoride.....	GlF <sub>2</sub> .....	47.1	2.115°	800°
24	hydroxide.....	Gl(OH) <sub>2</sub> .....	43.12	.....	decomp.
25	iodide.....	GlI <sub>2</sub> .....	263.04	4.2015°	510°
26	nitrate.....	Gl(NO <sub>3</sub> ) <sub>2</sub> .3H <sub>2</sub> O.....	187.23	.....	90°
27	oxide.....	GlO.....	25.10	3.0160°	infusible
28	oxychloride.....	Gl <sub>2</sub> OCl <sub>2</sub> .....	105.10	.....	.....
29	potassium fluoride.	GlF <sub>2</sub> .2KF.....	163.40	.....	.....
30	sodium fluoride....	GlF <sub>2</sub> .2NaF.....	131.20	.....	.....
31	sulphate.....	GlSO <sub>4</sub> .4H <sub>2</sub> O.....	177.22	1.712510.5°	2H <sub>2</sub> O, 100°
32	"    .....	GlSO <sub>4</sub> .7H <sub>2</sub> O.....	231.27	.....	.....
33	Gold ¶.....	Au.....	197.2	19.32	1065°
34	colloidale.....	Au.....	197.2	.....	.....
35	phosphide.....	Au <sub>2</sub> P <sub>3</sub> .....	487.4	6.67	decomp.
36	Helium.....	He.....	4	{ 0.1368A. 1.98D.	< -271.3
37	Hydrazine.....	NH <sub>2</sub> .NH <sub>2</sub> .....	32.11	1.013†‡	1.4°
38	azoimid.....	N <sub>2</sub> H <sub>4</sub> .HN <sub>3</sub> .....	75.24	.....	65°
39	dihydrochloride.....	N <sub>2</sub> H <sub>4</sub> .H <sub>2</sub> Cl <sub>2</sub> .....	105.03	.....	198°
40	formate.....	N <sub>2</sub> H <sub>4</sub> (H <sub>2</sub> CO <sub>2</sub> ) <sub>2</sub> .....	124.14	.....	128°

\* Volatile at 1350°.      † Sublimes at 450°.      ‡ decomposes at 100°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	v. soluble	v. soluble	soluble al.; insol. ether	.....
2	.....	.....	.....	.....	white.....
3*	.....	insoluble	insoluble	sol. hot conc. $H_2SO_4$ , aq. r.	gray reg. oct...
4	.....	decomp.	.....	.....	.....
5	.....	decomp.	.....	.....	.....
6	86°	decomp.	.....	insol. hot conc. $H_2SO_4$	.....
7	72°	.....	.....	.....	.....
8	160°	insoluble	.....	soluble HCl.....	.....
9	.....	deliques.	soluble	.....	crystalline.....
10	350–400°	deliques.	soluble	.....	yellow.....
11	.....	soluble	.....	soluble HCl.....	grayish black..
12	.....	0.4 <sup>20°</sup>	1.05 <sup>100°</sup>	soluble acids, alkalies..	rhombic.....
13	>100°	insoluble	.....	soluble acids.....	.....
14	.....	0.25	soluble	soluble HCl, KOH.....	rhomb. or mon.
15	.....	0.45	soluble	insol. acids; sol. alk.....	.....
16	.....	insoluble	insoluble	sol. dil. a., alkalies.....	grayish hexag..
17†	.....	deliques.	v. soluble	.....	needles.....
18	.....	decomp.	decomp.	soluble acids.....	yellow hexag...
19	.....	0.36°	.....	.....	.....
20	.....	insoluble	decomp.	soluble acids, alk.....	.....
21	500°	deliques.	v. soluble	v. soluble alcohol.....	needles.....
22	.....	deliques.	v. soluble	soluble alcohol.....	crystalline.....
23	.....	∞ soluble	∞ soluble	soluble al., $H_2SO_4$ .....	.....
24	.....	insoluble	.....	sol. acids, alk., $(NH_4)_2CO_3$	.....
25	585–595°	decomp.	decomp.	sol. al., ether, $CS_2$ .....	needles.....
26‡	.....	deliques.	v. soluble	v. soluble alcohol.....	crystalline.....
27	.....	insoluble	.....	sol. acids, alk.....	hexagonal.....
28	.....	insoluble	.....	.....	.....
29	.....	2 <sup>20°</sup>	5.26 <sup>100°</sup>	.....	.....
30	.....	1.47 <sup>18°</sup>	2.94 <sup>100°</sup>	.....	.....
31	decomp.	100 <sup>14°</sup>	∞	insoluble alcohol.....	tetragonal.....
32	.....	.....	.....	.....[ $Cl_2H_2O$	monoclinic.....
33	.....	insoluble	insoluble	insol. a.; sol. KCN, aq. r.	yellow regular.
34	.....	soluble	.....	insol. a.; sol. alk., aq. r.	blue violet....
35	.....	.....	.....	insol. HCl; dec. by $HNO_3$	gray.....
36	–267°	1.487 c.c. <sup>0.5</sup>	1.371 c.c. <sup>25</sup>	absorbed by platinum..	.....
37	113.5°	v. soluble	.....	soluble alcohol.....	crystalline.....
38	.....	deliques.	v. soluble	v. soluble alcohol.....	.....
39	.....	soluble	v. soluble	soluble alcohol.....	regular.....
40	.....	soluble	.....	.....	regular.....

¶ For other compounds of Gold see "Auric" and "Aurous."

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
1	Hydrazine hydroxide	N <sub>2</sub> H <sub>4</sub> .H <sub>2</sub> O.....	50.13	1.0305 <sup>21°</sup>	< -40°
2	sulphate.....	N <sub>2</sub> H <sub>4</sub> .H <sub>2</sub> SO <sub>4</sub> .....	130.19	.....	254°
3	nitrate.....	N <sub>2</sub> H <sub>4</sub> .HNO <sub>3</sub> .....	95.16	.....	69°
4	Hydrazoic Acid.....	HN <sub>3</sub> .....	43.13	.....	.....
5	Hydrobromic Acid..	HBr.....	80.97	1.278A.	-86.13°
6	“ “	HBr.H <sub>2</sub> O.....	98.99	1.78	.....
7	Hydrochloric Acid..	HCl.....	36.46	1.195 <sup>8°</sup>	-112.5°
8	Hydrocyanic Acid...	HCN.....	27.05	0.697 <sup>18°</sup>	-15°
9	Hydrofluoric Acid...	HF.....	20.01	0.9879 <sup>15°</sup>	-92.3°
10	Hydroiodic Acid....	HI.....	127.98	4.3737A.	-51.3°..
11	Hydrogen.....	H <sub>2</sub> .....	2.016	0.06949A.	-256.5°
12	peroxide.....	H <sub>2</sub> O <sub>2</sub> .....	34.02	1.4584 <sup>0°</sup>	-2°
13	persulphide.....	H <sub>2</sub> S <sub>2</sub> .....	66.14	1.734	.....
14	selenide.....	H <sub>2</sub> Se.....	81.22	.....	-64°
15	sulphide.....	H <sub>2</sub> S.....	34.08	0.9 1.1895A.	-85.5°
16	telluride.....	H <sub>2</sub> Te.....	129.62	65.1D	-48°
17	Hydroxylamine.....	NH <sub>2</sub> OH.....	33.06	1.227 <sup>4°</sup>	33.05°
18	hydrochloride.....	NH <sub>2</sub> OH.HCl.....	69.52	.....	151°
19	nitrate.....	NH <sub>2</sub> OH.HNO <sub>3</sub> .....	96.11	.....	-10°
20	sulphate.....	(NH <sub>2</sub> OH) <sub>2</sub> .H <sub>2</sub> SO <sub>4</sub> ..	164.20	.....	170°
21	Indium.....	In.....	115	7.12 <sup>4°</sup>	155°
22	bromide.....	InBr <sub>3</sub> .....	354.88	.....	.....
23	chloride mono-....	InCl.....	150.45	.....	.....
24	“ di-.....	InCl <sub>2</sub> .....	185.90	.....	.....
25	“ tri-.....	InCl <sub>3</sub> .....	221.35	.....	.....
26	cyanide.....	In(CN) <sub>3</sub> .....	193.12	.....	.....
27	fluoride.....	In <sub>2</sub> F <sub>6</sub> .18H <sub>2</sub> O.....	668.29	.....	decomp.
28	hydroxide.....	In(OH) <sub>3</sub> .....	166.02	.....	*
29	iodide.....	InI <sub>3</sub> .....	495.91	.....	v. fusible
30	nitrate.....	In(NO <sub>3</sub> ) <sub>3</sub> .4½H <sub>2</sub> O....	382.19	.....	4½H <sub>2</sub> O, 10°
31	oxide mon-.....	InO.....	131.00	.....	.....
32	“ sesqui-.....	In <sub>2</sub> O <sub>3</sub> .....	278.00	7.179	infusible
33	sulphate.....	In <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	518.18	3.438	.....
34	sulphide.....	In <sub>2</sub> S <sub>3</sub> .....	326.18	.....	infusible
35	sulphite.....	2In <sub>2</sub> O <sub>3</sub> .3SO <sub>2</sub> .8H <sub>2</sub> O...	892.31	.....	3H <sub>2</sub> O, 100°
36	Iodic Acid.....	HIO <sub>3</sub> .....	175.98	4.629 <sup>0°</sup>	½H <sub>2</sub> O, 190°
37	Iodine.....	I <sub>2</sub> .....	253.94	4.948 <sup>17°</sup>	114.2°

\* Sublimes at white heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (Al.), Acids (a.), Alkalies (alk.), etc.	
1	119°	∞	v. soluble	∞ sol. al.; insol. ether.	.....
2	.....	s. soluble	v. soluble	insoluble alcohol.....	tables.....
3	.....	.....	.....	.....	.....
4	37°	∞	.....	soluble alcohol.....	liquid.....
5	-68.7°	221.2°	130 <sup>100°</sup>	soluble alcohol.....	crystalline.....
6	.....	.....	.....	.....	.....
7	-83.1°	82.5 <sup>10°</sup>	56.1 <sup>60°</sup>	soluble alcohol, ether ..	.....
8	26.1°	∞	.....	∞ sol. al., ether.....	crystalline.....
9	19.44°	264	.....	.....	.....
10	36.7°	42500 c.c. <sup>10°</sup>	.....	soluble alcohol.....	.....
11	-252.5°	2.1 c.c. <sup>0.5°</sup>	.....	sol. palladium, charcoal, Pt., Fe., etc.	.....
12	80.2° (47mm.)	∞	.....	sol. ether, al.....	prisms.....
13	.....	decomposes	.....	sol. CS <sub>2</sub> , benz.; insol. al..	yellowish oil. . .
14	-42°	331 c.c. <sup>13°</sup>	.....	soluble CS <sub>2</sub> .....	.....
15	-61.8°	437 c.c. <sup>0°</sup>	291 c.c. <sup>20°</sup>	9.54 <sup>20°</sup> vol. al.....	.....
16	0	soluble	.....	.....	.....
17	70 (60mm.)	soluble	decomp.	soluble alcohol, acids...	crystalline.....
18	decomp.	v. soluble	.....	sol. al.; insol. ether....	monoclinic.....
19	dec. > 100°	v. soluble	decomp.	v. soluble alcohol.....	.....
20	.....	v. soluble	soluble	s. soluble alcohol.....	monoclinic.....
21	red heat	insoluble	insoluble	soluble acids.....	regular octahed.
22	.....	deliques.	v. soluble	.....	crystalline.....
23	.....	deliques.	decomp.	.....	dark red cryst..
24	.....	deliques.	decomp.	.....	crystalline.....
25	440°	deliques.	v. soluble	s. sol. al., ether.....	.....
26	.....	insoluble	.....	sol. HCN.....	.....
27	.....	s. soluble	decomp.	sol. HCl, HNO <sub>3</sub> ; insol. al., ether	needles.....
28	.....	insoluble	.....	sol. acids, alk.; insol. NH <sub>3</sub>	.....
29	.....	deliques.	.....	.....	yellow crystals.
30	decomp.	deliques.	soluble	soluble alcohol.....	needles.....
31	.....	insoluble	.....	soluble acids.....	black.....
32	†	insoluble	.....	sol. acids, insol. NH <sub>3</sub> ...	yel. amor. rh'bh.
33	.....	deliques.	v. soluble	.....	.....
34	.....	.....	.....	dec. by a.; sol. (NH <sub>4</sub> ) <sub>2</sub> S	yellow.....
35	‡	insoluble	.....	soluble acids.....	crystalline.....
36	.....	286°	471 <sup>80°</sup>	v. soluble alcohol, HNO <sub>3</sub>	trimetric.....
37	184.35°	0.0182 <sup>11°</sup>	0.045 <sup>30°</sup>	sol. KI, CS <sub>2</sub> , al., CHCl <sub>3</sub> , ether	gray black..... rhombic

† Volatile at 850°.

‡ Loses 8H<sub>2</sub>O at 260°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A) H <sub>2</sub> = 1 (D).	Melting Point, °C.
	Iodine				
1	chloride mono- α..	ICl.....	162.42	3.1822‡	24.7°
2	“ “ β..	ICl.....	162.42	.....	13.9
3	“ tri-.....	ICl <sub>3</sub> .....	233.32	3.1107	33°
4	fluoride.....	IF <sub>5</sub> .....	221.97	.....	8°
5	monobromide.....	IBr.....	206.93	.....	36°
6	oxide di-.....	IO <sub>2</sub> .....	158.97	.....	*
7	“ pent-.....	I <sub>2</sub> O <sub>5</sub> .....	333.94	4.25–4.80	dec. 300°
8	Iridium.....	Ir.....	193.0	15.86	2250°
9	“.....	Ir.....	193.0	22.42	1950°
					[120°
10	bromide tri-.....	IrBr <sub>3</sub> .4H <sub>2</sub> O.....	504.94	.....	3H <sub>2</sub> O, 100-
11	“ tetra-.....	IrBr <sub>4</sub> .....	512.84	.....	decomp.
12	chloride di-.....	IrCl <sub>2</sub> .....	263.90	.....	.....
13	“ tri-.....	IrCl <sub>3</sub> .....	299.35	.....	.....
14	“ tetra-.....	IrCl <sub>4</sub> .....	334.80	.....	decomp.
15	hydroxide di-.....	IrO <sub>2</sub> .2H <sub>2</sub> O.....	261.03	.....	.....
16	“ sesqui-.....	Ir <sub>2</sub> O <sub>3</sub> .3H <sub>2</sub> O.....	488.05	.....	.....
17	iodide tri-.....	IrI <sub>3</sub> .....	573.91	.....	.....
18	“ tetra-.....	IrI <sub>4</sub> .....	700.88	.....	dec. 360°
19	oxide di-.....	IrO <sub>2</sub> .....	225.00	.....	.....
20	“ sesqui-.....	Ir <sub>2</sub> O <sub>3</sub> .....	431.00	.....	dec. 1000°
21	sulphide mono-.....	IrS.....	225.06	.....	oxidizes
22	“ di-.....	IrS <sub>2</sub> .....	257.12	.....	oxidizes
23	“ sesqui-.....	Ir <sub>2</sub> S <sub>3</sub> .....	482.18	.....	oxidizes
24	Iron pure.....	Fe.....	55.9	7.85–7.88	1804°
25	wrought.....	Fe.....	55.9	7.86	1600°
26	white pig.....	Fe.....	55.9	7.58–7.73	1075°
27	gray pig.....	Fe.....	55.9	7.03–7.13	1275°
28	steel.....	Fe.....	55.9	7.60–7.80	1375°
29	cast steel.....	Fe.....	55.9	.....	1375°
30	boride.....	FeB.....	66.9	7.15 <sup>18°</sup>	.....
31	carbide.....	Fe <sub>3</sub> C.....	179.7	7.07 <sup>16°</sup>	.....
32	“.....	FeC <sub>4</sub> .....	103.90	.....	.....
33	carbonyl.....	Fe(CO) <sub>5</sub> .....	195.90	1.47	–21°
34	disulphide.....	FeS <sub>2</sub> .....	120.05	4.86–5.18	decomp.
35	nitride.....	Fe <sub>2</sub> N.....	125.84	6.35	dec. 200°

\* Decomposes between 170° and 180°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	101.3°	decomp.	.....	{ sol. al., CS <sub>2</sub> , ether, ....	dark red needles
2	101.3°	decomp.	.....	{ glacial H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ....	reddish brown rhomb. plates
3	.....	soluble	decomp.	sol. al., ether, HCl, glac. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	yellow crystals.
4	97°	decomp.	decomp.	decomposes acids.....	liquid.....
5	.....	s. soluble	.....	sol. al., CS <sub>2</sub> , ether.....	dark gray cryst.
6	.....	insoluble	decomp.	insol. al.; sol. H <sub>2</sub> SO <sub>4</sub> ...	yellow.....
7	.....	187.413°	.....	insol. al., CS <sub>2</sub> , ether....	trimetric.....
8	.....	insoluble	insoluble	sol. aq. r., Cl <sub>2</sub> .H <sub>2</sub> O.....	white spongy ..
9	.....	insoluble	insoluble	insol. a., aqua regia....	reg. or hexagon. rhombohedral
10	.....	soluble	.....	insoluble alcohol, ether.	olive gr. cryst..
11	.....	soluble	.....	soluble alcohol.....	blue crystals...
12	.....	insoluble	.....	.....	blackish green ..
13	.....	soluble	.....	insoluble acids, alkalies.	olive green ....
14	.....	soluble	decomp.	soluble alcohol.....	dark red.....
15	.....	insoluble	.....	soluble HCl, alk. ....	indigo blue....
16	.....	insoluble	.....	insoluble acids.....	black.....
17	.....	s. soluble	soluble	insoluble alcohol.....	black crystals..
18	.....	insoluble	insoluble	soluble KI, NaI.....	black.....
19	.....	insoluble	.....	insoluble acids.....	black.....
20	.....	insoluble	.....	insoluble acids.....	blue black.....
21	.....	insoluble	.....	insol. acids; sol. K <sub>2</sub> S...	blue black.....
22	.....	insoluble	.....	insol. acids; sol. K <sub>2</sub> S...	black.....
23	.....	s. soluble	.....	soluble HNO <sub>3</sub> , K <sub>2</sub> S....	brown black...
24	.....	insoluble	insoluble	sol. acids; insol. alk....	cubical or reg. octahedral...
25	.....	insoluble	insoluble	sol. acids; insol. alk....	.....
26	.....	insoluble	insoluble	sol. acids; insol. alk....	.....
27	.....	insoluble	insoluble	sol. acids; insol. alk....	.....
28	.....	insoluble	insoluble	sol. acids; insol. alk....	.....
39	.....	insoluble	insoluble	sol. acids; insol. alk....	.....
30	.....	insoluble	.....	sol. HNO <sub>3</sub> , hot conc. H <sub>2</sub> SO <sub>4</sub>	gray crystals...
31	.....	insoluble	insoluble	soluble acids.....	regular.....
32	.....	insoluble	.....	s. soluble HCl.....	gray crystals...
33	103°	.....	.....	sol. conc. H <sub>2</sub> SO <sub>4</sub> , al., alk.	yellow. [rhomb.
34	.....	insoluble	.....	insoluble dil. acids....	yellow reg. or
35	.....	decomp.	.....	sol. HCl, H <sub>2</sub> SO <sub>4</sub> .....	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Iron* phosphide . . . .	Fe <sub>2</sub> P . . . . .	142.80	6.57 <sup>15°</sup>	infusible
2	Krypton . . . . .	Kr . . . . .	81.8	{ 2.818A. 40.78D.	−169°
3	Lactic Acid . . . . .	H.C <sub>3</sub> H <sub>5</sub> O <sub>3</sub> . . . . .	90.05	1.2485 <sup>4</sup>	< −24°
4	Lanthanum . . . . .	La . . . . .	138.9	6.1545	810°
5	bromide . . . . .	LaBr <sub>3</sub> .7H <sub>2</sub> O . . . . .	504.89	.....	.....
6	carbide . . . . .	LaC <sub>2</sub> . . . . .	162.90	5.02 <sup>20°</sup>	.....
7	carbonate . . . . .	La <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub> .8H <sub>2</sub> O . . . . .	601.93	.....	.....
8	chloride . . . . .	LaCl <sub>3</sub> . . . . .	245.25	3.947 <sup>4</sup>	907°
9	" . . . . .	LaCl <sub>3</sub> .7H <sub>2</sub> O . . . . .	371.36	.....	.....
10	nitrate . . . . .	La(NO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O . . . . .	433.12	.....	40°
11	oxalate . . . . .	La <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .9H <sub>2</sub> O . . . . .	703.94	.....	.....
12	oxide sesqui- . . . . .	La <sub>2</sub> O <sub>3</sub> . . . . .	325.80	6.41 <sup>15°</sup>	infusible
13	sulphate . . . . .	La <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . . . . .	565.98	3.600	dec. 1150°
14	" . . . . .	La <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .9H <sub>2</sub> O . . . . .	728.12	2.821	decomp.
15	sulphide . . . . .	La <sub>2</sub> S <sub>3</sub> . . . . .	373.98	4.911 <sup>11°</sup>	.....
16	Lead . . . . .	Pb . . . . .	206.9	11.34	327°
17	acetate (sugar of) . . . . .	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O . . . . .	379.00	2.50	75°, 3H <sub>2</sub> O
18	" basic . . . . .	Pb <sub>2</sub> (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub> OH . . . . .	607.88	.....	.....
19	" " . . . . .	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> Pb(OH) <sub>2</sub> .H <sub>2</sub> O . . . . .	583.88	.....	.....
20	" " . . . . .	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .2Pb (OH) <sub>2</sub> . . . . .	806.78	.....	.....
21	azoimide . . . . .	PbN <sub>6</sub> . . . . .	291.14	.....	.....
22	borate . . . . .	Pb(BO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	310.92	5.598(anhy)	red heat
23	bromate . . . . .	Pb(BrO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	480.84	.....	dec. 180°
24	bromide . . . . .	PbBr <sub>2</sub> . . . . .	366.82	6.572 <sup>19.2°</sup>	363°
25	carbonate . . . . .	PbCO <sub>3</sub> . . . . .	266.90	6.43	.....
26	" basic . . . . .	2PbCO <sub>3</sub> .Pb(OH) <sub>2</sub> . . . . .	774.72	.....	decomp.
27	chlorate . . . . .	Pb(ClO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	391.82	4.037	dec. 230°
28	chloride . . . . .	PbCl <sub>2</sub> . . . . .	277.80	5.80	447°
29	" tetra- . . . . .	PbCl <sub>4</sub> . . . . .	348.70	3.18 <sup>0°</sup>	−15° . . . .
30	chlorite . . . . .	Pb(ClO <sub>2</sub> ) <sub>2</sub> . . . . .	341.80	.....	.....
31	chromate . . . . .	PbCrO <sub>4</sub> . . . . .	232.00	6.123 <sup>15°</sup>	fusible
32	" basic (chrome red) . . . . .	PbCrO <sub>4</sub> .PbO . . . . .	545.90	.....	.....
33	cyanate . . . . .	Pb(CNO) <sub>2</sub> . . . . .	290.98	.....	decomp.
34	cyanide . . . . .	Pb(CN) <sub>2</sub> . . . . .	258.98	.....	.....

\* For other compounds of Iron see "Ferrous" and "Ferric."

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	insoluble	insoluble	insol.acids; sol.HNO <sub>3</sub> + HF	gray crystals...
2	-151.7	.....	.....	.....	.....
3	.....	∞	∞	∞ sol. al.; s. sol. ether	.....
4	.....	decomp.	decomp.	soluble acids.....	lead gray.....
5	.....	v. soluble	.....	v. sol. al.; insol. ether..	.....
6	.....	decomp.	decomp.	soluble acids.....	yellow crystals.
7	.....	insoluble	.....	s. soluble, CO <sub>2</sub> aq.....	trimetric.....
8	.....	v. soluble	decomp.	v. soluble alcohol.....	white crystals..
9	.....	v. soluble	.....	v. soluble alcohol.....	triclinic.....
10	126	deliques.	v. soluble	v. soluble alcohol.....	prismatic.....
11	.....	insoluble	.....	.....	.....
12	.....	s. soluble	.....	soluble al., acids, NH <sub>4</sub> Cl	rhombic.....
13	.....	16.6 <sup>20-30</sup>	0.87 <sup>100</sup>	s. soluble alcohol.....	.....
14	.....	20.3 <sup>20-30</sup>	1.06 <sup>100</sup>	s. soluble alcohol.....	hexagonal.....
15	.....	insoluble	decomp.	soluble dilute acids....	red-yellow crys.
16	1400-1600	insoluble	insoluble	sol. HNO <sub>3</sub> , hot conc. H <sub>2</sub> SO <sub>4</sub>	regular or mon- oclinic
17	280	45.64 <sup>15</sup>	200 <sup>100</sup>	insoluble alcohol.....	monoclinic.....
18	.....	v. soluble	.....	s. soluble alcohol.....	.....
19	.....	v. soluble	.....	v. soluble alcohol.....	needles.....
20	.....	5.55	18.2	soluble alcohol.....	needles.....
21	.....	0.05	s. soluble	v. soluble H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ...	crystalline.....
22	†	insoluble	insoluble	insol. alk., sol. acids...	crystalline.....
23	.....	1.38 <sup>20</sup>	.....	.....	monoclinic.....
24	861	0.455 <sup>0</sup>	4.75 <sup>100</sup>	sol. acids, KBr; insol. al.	rhombic.....
25	.....	0.00198	decomp.	insoluble alcohol.....	rhombic.....
26	.....	insoluble	insoluble	0.02 CO <sub>2</sub> aq.....	amorphous....
27	.....	v. soluble	soluble	soluble.....	monoclinic.....
28	861-954	0.673 <sup>0</sup>	3.34 <sup>100</sup>	0.09 dil. HCl, insol. al..	rhombic.....
29	‡	decomp.	decomp.	.....	.....
30	.....	s. soluble	soluble	.....	yellow monocl..
31	.....	.00002 <sup>18</sup>	insoluble	sol. acids, alk.; insol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	yellow monocl..
32	.....	insoluble	insoluble	soluble acids, alkalies..	red crystals....
33	.....	insoluble	s. soluble	.....	crystals.....
34	.....	s. soluble	soluble	insoluble KCN.....	.....

† Loses H<sub>2</sub>O at 160°.

‡ Decomposes at 105°.

Number.	Name.	Formula.	Molec- ular. Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Lead dichromate....	PbCr <sub>2</sub> O <sub>7</sub> .....	423.10	.....	.....
2	dithionate.....	PbS <sub>2</sub> O <sub>6</sub> .4H <sub>2</sub> O.....	439.08	3.245	decomp.
3	ferricyanide.....	Pb <sub>3</sub> [Fe(CN) <sub>6</sub> ] <sub>2</sub> .6H <sub>2</sub> O	1333.2	.....	decomp.
4	ferrocyanide.....	Pb <sub>2</sub> Fe(CN) <sub>6</sub> .3H <sub>2</sub> O ..	679.99	.....	decomp.
5	fluoride.....	PbF <sub>2</sub> .....	244.90	8.24	fusible
6	formate.....	Pb(CHO <sub>2</sub> ) <sub>2</sub> .....	296.92	4.571	dec. 190°
8	hydroxide.....	2PbO.H <sub>2</sub> O.....	483.82	.....	dec. 145°
9	"	3PbO.H <sub>2</sub> O.....	686.72	7.592	H <sub>2</sub> O, 130°
10	iodate.....	Pb(IO <sub>3</sub> ) <sub>2</sub> .....	556.84	.....	.....
11	iodide.....	PbI <sub>2</sub> .....	460.84	6.12	373°
12	nitrate.....	Pb(NO <sub>3</sub> ) <sub>2</sub> .....	330.98	4.53 <sup>24</sup>	*
13	oxalate.....	PbC <sub>2</sub> O <sub>4</sub> .....	294.9	5.025	dec. 300°
14	oxide mon-.....	PbO.....	222.90	9.375	585°-630°
15	" "	PbO.....	222.90	8.74 <sup>14</sup>	.....
16	" "	PbO.....	222.90	9.2-9.5	red heat
17	" sub-.....	Pb <sub>2</sub> O.....	429.80	8.342	.....
18	" sesqui-.....	Pb <sub>2</sub> O <sub>3</sub> .....	461.80	.....	dec. 370°
19	" red (minium)	Pb <sub>3</sub> O <sub>4</sub> .....	684.70	9.096 <sup>15</sup>	dec. 500°- 530°
20	" per-.....	PbO <sub>2</sub> .....	238.90	8.91	decomp.
21	oxychloride.....	PbCl <sub>2</sub> .PbO.....	500.70	7.21	.....
22	"	PbCl <sub>2</sub> .2PbO.....	723.60	7-7.1	.....
23	"	PbCl <sub>2</sub> .3PbO.....	946.50	.....	.....
24	"	PbCl <sub>2</sub> .7PbO.....	1838.1	.....	.....
	(cossel yellow)				
25	perchlorate.....	Pb(ClO <sub>4</sub> ) <sub>2</sub> .3H <sub>2</sub> O.....	459.85	.....	.....
26	periodate.....	PbHIO <sub>5</sub> .....	414.88	.....	dec. 130°
27	"	PbHIO <sub>5</sub> .H <sub>2</sub> O.....	432.89	.....	†
28	persulphate.....	PbS <sub>2</sub> O <sub>8</sub> .3H <sub>2</sub> O.....	453.07	.....	.....
29	phosphate.....	Pb <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	810.70	6.9-7.3	.....
30	phosphite.....	PbHPO <sub>3</sub> .....	286.91	.....	decomp.
31	pyrophosphate....	Pb <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .H <sub>2</sub> O.....	605.82	.....	806°(anh.)
32	selenide.....	PbSe.....	286.10	8.10 <sup>15</sup>	decomp.
33	sulphate.....	PbSO <sub>4</sub> .....	302.96	6.23	937°
34	" acid.....	Pb(HSO <sub>4</sub> ) <sub>2</sub> .H <sub>2</sub> O....	419.05	.....	.....
35	" basic.....	PbSO <sub>4</sub> .PbO.....	525.86	.....	.....
36	sulphide.....	PbS.....	238.96	7.13-7.7	1015°
37	sulphite.....	PbSO <sub>3</sub> .....	286.96	.....	.....

\* Decomposes at 205°-223°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		decomp.		soluble acids, alkalies	red crystalline
2		soluble			crystalline
3		s. soluble	soluble	soluble alkalies, $\text{HNO}_3$	red crystals
4		insoluble		s. soluble conc., $\text{H}_2\text{SO}_4$	
5		0.064 <sup>18°</sup>		soluble $\text{HNO}_3$	
7		1.6 <sup>16°</sup>	18 <sup>100°</sup>	insoluble alcohol	rhombic
8		s. soluble	s. soluble	soluble alkalies	
9		0.014		soluble alkalies	regular
10		0.0012 <sup>20°</sup>		s. soluble $\text{HNO}_3$	
11	861–954°	0.044 <sup>40°</sup>	0.436 <sup>100°</sup>	insol. al., sol. KI	yellow hexag.
12		39 <sup>0°</sup>	138.9 <sup>100°</sup>	8.77 <sup>22°</sup> alcohol	octahedral
13		s. soluble		insol. al. sol. $\text{HNO}_3$	
14	white heat	0.013–02 <sup>20°</sup>		{ soluble alkalies, lead.	yellow rhomb.
15	white heat	insoluble	insoluble	{ acetate, $\text{NH}_4\text{Cl}$ , $\text{CaCl}_2$ ,	red hexagonal.
16	white heat	insoluble	insoluble	{ $\text{SrCl}_2$ .....	amorphous
17		insoluble		dec. by acids, alkalies	grayish black
18		insoluble	decomp.	decomp.	reddish yellow
19		insoluble		sol. glacial $\text{H.C}_2\text{H}_3\text{O}_2$	scarlet [amorp.
20		insoluble	insoluble	insol. al.; sol. glac. H. $\text{C}_2\text{H}_3\text{O}_2$	brown hexag.
21		insoluble	insoluble	soluble alkalies	tetragonal
22		insoluble		soluble alkalies	yellow trimet.
23		insoluble			yellow
24		insoluble			yellow crystals
25		100°		soluble alcohol	
26		insoluble	insoluble	soluble dil. $\text{HNO}_3$	crystalline
27		insoluble	insoluble	s. soluble dil. $\text{HNO}_3$	amorphous
28		v. soluble			
29		0.000014 <sup>20°</sup>	insoluble	sol. $\text{HNO}_3$ ; insol. H. $\text{C}_2\text{H}_3\text{O}_2$	
30		insoluble		soluble $\text{HNO}_3$	
31		insoluble	decomp.	sol. $\text{Na}_4\text{P}_2\text{O}_7$ , $\text{HNO}_3$ , KOH	rhombic
32		insoluble		decomp. $\text{HNO}_3$	regular
33		0.0042 <sup>20°</sup>	s. soluble	sol. conc. $\text{H}_2\text{SO}_4$ , HCl, $\text{NH}_4$ salts; insol. al.	rhombic
34		s. soluble		s. soluble $\text{H}_2\text{SO}_4$	crystalline
35		0.0044°	s. soluble	s. soluble $\text{H}_2\text{SO}_4$	
36	1085°	insoluble	insoluble	sol. conc.; a. insol. KOH	black regular
37		insoluble		s. sol., $\text{H}_2\text{SO}_3$ sol. $\text{HNO}_3$	

† Loses  $\text{H}_2\text{O}$  at 110°–120°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Lead sulphochloride..	3PbS.PbCl <sub>2</sub> .....	994.68	.....	.....
2	sulphocyanate.....	Pb(CNS) <sub>2</sub> .....	323.10	3.82	.....
3	thiosulphate.....	PbS <sub>2</sub> O <sub>3</sub> .....	319.02	.....	decomp.
4	tungstate.....	PbWO <sub>4</sub> .....	454.90	8.235	.....
5	Lithium.....	Li.....	7.03	0.5936	186°
6	acetate.....	LiC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .2H <sub>2</sub> O.....	102.09	.....	70°
7	amid.....	LiNH <sub>2</sub> .....	23.09	.....	.....
8	bicarbonate.....	LiHCO <sub>3</sub> .....	68.04	.....	.....
9	bichromate.....	Li <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .2H <sub>2</sub> O.....	266.29	.....	.....
10	borate.....	Li <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .5H <sub>2</sub> O.....	260.14	.....	.....
11	bromide.....	LiBr.....	86.99	3.466 <sup>†</sup>	442°–547
12	carbide.....	Li <sub>2</sub> C <sub>2</sub> .....	38.06	1.65 <sup>18°</sup>	.....
13	carbonate.....	Li <sub>2</sub> CO <sub>3</sub> .....	74.06	2.111	618–710°
14	chlorate.....	LiClO <sub>3</sub> .½H <sub>2</sub> O.....	99.49	.....	50°
15	chloride.....	LiCl.....	42.48	1.998–2.074	491–600°
16	chloroplatinate....	Li <sub>2</sub> PtCl <sub>6</sub> .6H <sub>2</sub> O.....	529.66	.....	6H <sub>2</sub> O, 180°
17	chromate.....	Li <sub>2</sub> CrO <sub>4</sub> .H <sub>2</sub> O.....	148.18	.....	.....
18	fluoride.....	LiF.....	26.03	2.601	801°
19	fluosilicate.....	Li <sub>2</sub> SiF <sub>6</sub> .2H <sub>2</sub> O.....	192.49	2.33	2H <sub>2</sub> O, 100°
20	formate.....	LiCHO <sub>2</sub> .H <sub>2</sub> O.....	70.05	1.435–1.479	decomp.
21	hydroxide.....	LiOH.....	24.04	.....	red heat..
22	iodide.....	LiI.....	134.00	4.063 <sup>†</sup>	330°–446°
23	".....	LiI.3H <sub>2</sub> O.....	288.05	.....	72°
24	nitrate.....	LiNO <sub>3</sub> .....	69.07	2.334–2.442	253°–264°
25	".....	LiNO <sub>3</sub> .3H <sub>2</sub> O.....	123.12	.....	29.88°
26	oxalate.....	Li <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .....	102.06	2.1213 <sup>17.5°</sup>	decomp.
27	" acid.....	LiHC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O.....	114.05	.....	decomp.
28	oxide.....	Li <sub>2</sub> O.....	30.06	2.102 <sup>15°</sup>	.....
29	perchlorate.....	LiClO <sub>4</sub> .....	106.48	1.841	236°
30	".....	LiClO <sub>4</sub> .3H <sub>2</sub> O.....	160.53	.....	95°
31	phosphate.....	Li <sub>3</sub> PO <sub>4</sub> .H <sub>2</sub> O.....	134.11	2.41 <sup>15°</sup>	857°
32	silicate.....	Li <sub>2</sub> SiO <sub>3</sub> .....	90.46	2.529 <sup>15°</sup>	.....
33	silicide.....	Li Si <sub>2</sub> .....	98.98	1.12	decomp.
34	sulphate.....	Li <sub>2</sub> SO <sub>4</sub> .....	110.12	2.210 <sup>15°</sup>	818°–853°
35	".....	Li <sub>2</sub> SO <sub>4</sub> .H <sub>2</sub> O.....	128.14	2.052 <sup>†</sup>	H <sub>2</sub> O, 130°
36	" acid.....	LiHSO <sub>4</sub> .....	104.10	2.123.....	120°
37	sulphide.....	Li <sub>2</sub> S.....	46.12	1.63–1.7	.....
38	sulphite.....	Li <sub>2</sub> SO <sub>3</sub> .6H <sub>2</sub> O.....	202.22	.....	red heat
39	urate.....	LiHC <sub>5</sub> H <sub>2</sub> N <sub>4</sub> O <sub>3</sub> .....	174.21	.....	.....
40	Magnesium.....	Mg.....	24.36	1.69–1.75	632.6°

\* Decomposes at 600°.

† Loses 1½ H<sub>2</sub>O at 90°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acid (a.), Alkalies (alk.), etc.	
1	.....	insoluble	decomp.	insoluble dilute acids...	red.....
2	.....	0.5 <sup>20°</sup>	decomp.	sol. KCNS, HNO <sub>3</sub> .....	yellow monocl..
3	.....	0.03	.....	soluble Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> .....	.....
4	.....	insoluble	.....	.....	regular.....
5	>1400°	decomp.	decomp.	soluble acids.....	silvery.....
6	decomp.	300 <sup>15°</sup>	v. soluble	21.5 alcohol.....	rhombic.....
7	430°	decomp.	decomp.	.....	green liquid....
8	.....	5.5 <sup>13°</sup>	.....	.....	.....
9	.....	150.7 <sup>30°</sup>	.....	.....	blk. brown crys.
10	.....	v. soluble	.....	insoluble alcohol.....	.....
11	.....	143°	270 <sup>103°</sup>	.....	crystalline.....
12	.....	decomp.	decomp.	soluble acids.....	crystalline.....
13	*	1.539 <sup>0°</sup>	0.728 <sup>100°</sup>	insoluble alcohol.....	prisms.....
14	†	deliques.	v. soluble	v. soluble alcohol.....	tetragonal.....
15	.....	63.7°	129 <sup>96°</sup>	2.475 <sup>25°</sup> al., sol. ether..	octahedral.....
16	.....	soluble	soluble	soluble alcohol, ether ..	orange red hex..
17	.....	115 <sup>30°</sup>	.....	.....	red trimetric...
18	.....	s. soluble	.....	soluble HF.....	tablets.....
19	decomp.	52.6	.....	sol. alcohol; insol. ether	monoclinic.....
20	.....	soluble	soluble	.....	rhombic.....
21	.....	8.344 <sup>0°</sup>	10.021 <sup>100°</sup>	s. soluble alcohol.....	crystalline.....
22	.....	151 <sup>0°</sup>	476 <sup>99°</sup>	.....	crystalline.....
23	.....	.....	.....	.....	{ rh'mb. or hex. rhombohedral or regular...
24	.....	48.3°	227.3 <sup>100°</sup>	soluble alcohol.....	
25	.....	.....	.....	.....	
26	.....	819.5°	.....	.....	.....
27	.....	817°	.....	.....	.....
28	.....	5.22°	6.26 <sup>100°</sup>	.....	crystalline.....
29	.....	soluble	.....	soluble alcohol.....	.....
30	‡	soluble	.....	soluble alcohol.....	rhombohedral..
31	§	0.04	.....	soluble acids, NH <sub>4</sub> Cl...	rhomboidal....
32	.....	insoluble	s. decomp.	soluble dil. HCl... [tine	hexagonal.....
33	.....	decomp.	decomp.	dec. by a.; insol. turpen-	blue crystals...
34	.....	35.34 <sup>0°</sup>	29.24 <sup>100°</sup>	soluble alcohol.....	¶
35	.....	43.52 <sup>0°</sup>	35.75 <sup>100°</sup>	soluble alcohol.....	monoclinic.....
36	.....	decomp.	.....	.....	prismatic.....
37	.....	v. soluble	.....	v. soluble alcohol.....	.....
38	.....	soluble	.....	s. soluble alcohol.....	needles.....
39	.....	0.27 <sup>20°</sup>	2.5 <sup>100°</sup>	.....	.....
40	1100°	insoluble	s. decomp.	sol. a., NH <sub>4</sub> salts.....	.....

‡ Loses 2H<sub>2</sub>O at 100°, 3H<sub>2</sub>O at 150°.§ Loses H<sub>2</sub>O at 100°.

¶ Monoclinic, regular, rhombic or hexagonal.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Magnesium acetate...	Mg(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .4H <sub>2</sub> O.	214.47	1.45	.....
2	aluminate.....	MgO.Al <sub>2</sub> O <sub>3</sub> .....	142.56	3.57 <sup>15°</sup>	.....
3	ammonium arsenate.	MgNH <sub>4</sub> AsO <sub>4</sub> .6H <sub>2</sub> O.	289.53	.....	decomp.
4	“ chloride.	MgCl <sub>2</sub> .NH <sub>4</sub> Cl.6H <sub>2</sub> O.	256.88	1.456	.....
5	“ chromate	MgCrO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> CrO <sub>4</sub> .6H <sub>2</sub> O	400.80	1.8293 <sup>17°</sup>	.....
6	“ phosphate	MgNH <sub>4</sub> PO <sub>4</sub> .6H <sub>2</sub> O..	245.53	1.71 <sup>15°</sup>	decomp.
7	“ sulphate.	MgSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 6H <sub>2</sub> O	360.72	1.723 <sup>12</sup>	.....
8	arsenate.....	2MgHAsO <sub>4</sub> .13H <sub>2</sub> O..	562.94	3.155 <sup>15°</sup>	.....
9	arsenite.....	Mg <sub>3</sub> (AsO <sub>3</sub> ) <sub>2</sub> .....	319.08	.....	.....
10	benzoate.....	Mg(C <sub>7</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O.	320.49	.....	decomp.
11	borate.....	Mg(BO <sub>2</sub> ) <sub>2</sub> .8H <sub>2</sub> O....	254.49	2.27	.....
12	bromate.....	Mg(BrO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O...	388.38	2.29	6H <sub>2</sub> O, 200°
13	bromide.....	MgBr <sub>2</sub> .....	184.28	.....	695°
14	“ .....	MgBr <sub>2</sub> .6H <sub>2</sub> O .....	292.38	.....	decomp.
15	carbonate.....	MgCO <sub>3</sub> .....	84.36	3.04	dec. 350°
16	“ .....	MgCO <sub>3</sub> .3H <sub>2</sub> O.....	138.41	1.808 <sup>H</sup>	.....
17	“ basic.....	4MgCO <sub>3</sub> .Mg(OH) <sub>2</sub> . 5H <sub>2</sub> O	485.90	2.18	.....
18	“ “ ....	3MgCO <sub>3</sub> .Mg(OH) <sub>2</sub> 3H <sub>2</sub> O	365.50	2.18	.....
19	chlorate.....	Mg(ClO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O...	299.36	.....	40°
20	chloride.....	MgCl <sub>2</sub> .....	95.26	2.177	708°
21	“ .....	MgCl <sub>2</sub> .6H <sub>2</sub> O.....	203.36	1.569 <sup>17°</sup>	2H <sub>2</sub> O, 100°
22	chromate.....	MgCrO <sub>4</sub> .7H <sub>2</sub> O.....	266.57	1.761	.....
23	ferrocyanide.....	Mg <sub>2</sub> Fe(CN) <sub>6</sub> .12H <sub>2</sub> O	477.05	.....	.....
24	fluoride.....	MgF <sub>2</sub> .....	62.32	2.472	908°
25	formate.....	Mg(CHO <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O..	150.41	.....	.....
26	hydroxide.....	Mg(OH) <sub>2</sub> .....	58.38	2.36 <sup>15°</sup>	decomp.
27	iodate.....	Mg(IO <sub>3</sub> ) <sub>2</sub> .4H <sub>2</sub> O....	446.36	3.28	4H <sub>2</sub> O, 210°
28	iodide.....	MgI <sub>2</sub> .....	278.30	.....	decomp.
29	nitrate.....	Mg(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O...	256.6	1.464	90°
30	nitride.....	Mg <sub>3</sub> N <sub>2</sub> .....	101.16	.....	decomp.
31	oxalate.....	MgC <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O.....	148.39	.....	decomp.
32	oxide.....	MgO.....	40.36	3.22–3.654	infusible
33	permanganate.....	Mg(MnO <sub>4</sub> ) <sub>2</sub> .6H <sub>2</sub> O..	370.46	.....	decomp.
34	phosphate.....	Mg <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O...	335.14	1.640 <sup>15°</sup> (22H <sub>2</sub> O)	.....

\* Loses 5H<sub>2</sub>O at 330°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	deliques.	v. soluble	v. soluble alcohol.....	monoclinic.....
2	.....	.....	.....	.....	.....
3	.....	0.014	soluble	0.003 Mg. mix., insol. al.	tetragonal.....
4	.....	16.7	.....	.....	.....
5	.....	v. soluble	v. soluble	.....	yellow monocl..
6	.....	0.01322	.....	soluble acids; insol. al..	tetragonal.....
7	.....	13.49°	67.8775°	.....	prisms
8	.....	insoluble	0.15	sol. HNO <sub>3</sub> ; insol. NH <sub>4</sub> Cl	.....
9	.....	insoluble	.....	insol. NH <sub>3</sub> aq.; sol. NH <sub>4</sub> Cl	.....
10	.....	4.525°	soluble	.....	.....
11	.....	insoluble	insoluble	soluble acids.....	.....
12	decomp.	71.57°	v. soluble	.....	regular.....
13	.....	v. soluble	.....	.....	.....
14	.....	v. soluble	.....	soluble alcohol.....	.....
15	.....	0.0106	.....	sol. acids, 2.21 CO <sub>2</sub> aq..	hex. rhomboh. or rhombic
16	.....	0.151819°	decomp.	sol. acids, 1.40 CO <sub>2</sub> aq..	hexagonal.....
17	.....	0.04	0.011	soluble acids, NH <sub>4</sub> salts	.....
18	.....	0.04	0.011	soluble acids, NH <sub>4</sub> salts	monoclinic.....
19	.....	deliques	v. soluble	soluble alcohol.....	.....
20	red heat	52.2°	65.878°	50 alcohol.....	crystalline.....
21	decomp.	167	367	50 alcohol.....	monoclinic.....
22	.....	v. soluble	v. soluble	.....	yellow.....
23	.....	33	.....	.....	pale yel. cryst..
24	.....	0.007618°	insoluble	sol. HNO <sub>3</sub> ; insol. al....	tetragonal.....
25	.....	7.7	.....	insol. alcohol, ether....	rhombic.....
26	.....	0.0009	.....	soluble NH <sub>4</sub> salts.....	rhombohedral..
27	decomp.	1015°	33100°	.....	monoclinic.....
28	.....	deliques.	v. soluble	soluble alcohol, ether ..	.....[triclinic
29	*	200	.....	soluble alcohol.....	monoclinic or
30	.....	insoluble	.....	soluble acids; insol. al...	†.....
31	.....	0.0716°	0.08100°	sol. alk. oxalates, a....	.....
32	.....	0.00062	.....	sol. acids. NH <sub>4</sub> salts ...	reg. or hexag...
33	.....	v. soluble	decomp.	sol. glac. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> methyl alcohol.....	purple needles .
34	.....	0.0205	.....	sol. acids; insol. NH <sub>4</sub> salts, H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ,	monoclinic.....

† Greenish yellow crystals.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Magnesium</b>					
1	phosphate acid....	MgHPO <sub>4</sub> .3H <sub>2</sub> O.....	174.42	2.123 <sup>15°</sup>	.....
2	“ “ ...	Mg <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .8H <sub>2</sub> O....	407.21	2.195 <sup>15°</sup>	.....
3	“ “ ...	MgHPO <sub>4</sub> .7H <sub>2</sub> O.....	246.48	.....	.....
4	“ pyro-...	Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	222.72	2.40	.....
5	phosphite.....	MgHPO <sub>3</sub> .3H <sub>2</sub> O.....	158.42	.....	.....
6	potassium chloride	MgCl <sub>2</sub> .KCl.6H <sub>2</sub> O....	277.96	.....	.....
7	“ sulphate	MgSO <sub>4</sub> .K <sub>2</sub> SO <sub>4</sub> .6H <sub>2</sub> O.	402.88	2.0277 <sup>3°</sup>	.....
8	selenate.....	MgSeO <sub>4</sub> .6H <sub>2</sub> O.....	275.66	1.928	.....
9	silicide.....	Mg <sub>3</sub> Si <sub>3</sub> .....	207.00	.....	.....
10	sodium chloride...	MgCl <sub>2</sub> .NaCl.H <sub>2</sub> O....	171.78	.....	.....
11	sulphate.....	MgSO <sub>4</sub> .....	120.42	2.65	.....
12	“ .....	MgSO <sub>4</sub> .7H <sub>2</sub> O.....	246.53	1.678 <sup>16°</sup>	.....
13	sulphide.....	MgS.....	56.42	2.82 <sup>15°</sup>	decomp.
14	sulphite.....	MgSO <sub>3</sub> .6H <sub>2</sub> O.....	212.52	.....	6H <sub>2</sub> O, 200°
15	tartrate.....	MgC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .4H <sub>2</sub> O....	244.46	.....	decomp.
16	thiosulphate.....	MgS <sub>2</sub> O <sub>3</sub> .6H <sub>2</sub> O.....	248.58	1.818 <sup>24°</sup>	3H <sub>2</sub> O, 170°
17	<b>Manganese</b> .....	Mn.....	55.0	7.42	1245°
18	acetate.....	Mn(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .4H <sub>2</sub> O..	245.11	1.6	.....
19	ammon. phosphate.	NH <sub>4</sub> MnPO <sub>4</sub> .H <sub>2</sub> O....	186.09	.....	.....
20	“ sulphate .	MnSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 6H <sub>2</sub> O	391.36	1.837 <sup>4°</sup>	.....
21	arsenite.....	Mn <sub>3</sub> H <sub>6</sub> (AsO <sub>3</sub> ) <sub>4</sub> .2H <sub>2</sub> O.	699.08	.....	.....
22	benzoate.....	Mn(C <sub>7</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O..	517.13	.....	.....
23	boride.....	MnB <sub>2</sub> .....	77.00	6.04 <sup>19°</sup>	fusible
24	bromide.....	MnBr <sub>2</sub> .....	214.92	.....	decomp.
25	“ .....	MnBr <sub>2</sub> .4H <sub>2</sub> O.....	286.98	.....	.....
26	carbide.....	Mn <sub>3</sub> C.....	177.00	6.89 <sup>17°</sup>	.....
27	carbonate.....	MnCO <sub>3</sub> .....	115.00	3.125–3.66	decomp.
28	chloride.....	MnCl <sub>2</sub> .....	125.9	2.478	red heat
29	“ .....	MnCl <sub>2</sub> .4H <sub>2</sub> O.....	197.96	1.913	87.5°
30	“ per-.....	MnCl <sub>4</sub> .....	196.8	.....	.....
31	ferrocyanide.....	Mn <sub>2</sub> Fe(CN) <sub>6</sub> .7H <sub>2</sub> O ..	448.25	.....	.....
32	fluoride di-.....	MnF <sub>2</sub> .....	93.00	3.98	856°
33	“ sesqui-....	Mn <sub>2</sub> F <sub>6</sub> .6H <sub>2</sub> O.....	332.10	3.54	decomp.
34	fluosilicate.....	MnSiF <sub>6</sub> .6H <sub>2</sub> O.....	305.50	1.9038 <sup>17.5°</sup>	decomp.
35	formate.....	Mn(CHO <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O...	181.05	1.953	decomp.
36	hydroxide -ous....	Mn(OH) <sub>2</sub> .....	89.02	3.258	decomp.
37	“ -ic.....	Mn <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O.....	176.02	4.335	decomp.
38	hypophosphite....	Mn(H <sub>2</sub> PO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O...	203.05	.....	.....

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	.....	.....	.....	plates.....
2	.....	.....	.....	.....	monocl. plates
3	.....	0.3	0.2	soluble acids; insol. al..	hexagonal....
4	.....	insoluble	insoluble	soluble acids; insol. al..	.....
5	.....	0.25	.....	soluble acids.....	.....
6	.....	.....	.....	.....	hexagonal....
7	.....	19.26°	81.70°	.....	.....
8	.....	v. soluble	.....	.....	monoclinic....
9	.....	insoluble	decomp.	dec. by acids, NH <sub>4</sub> Cl...	.....
10	.....	soluble	.....	.....	.....
11	.....	26.9°	73.8°	soluble alcohol.....	.....
12	.....	76.9°	671.2°	soluble alcohol.....	tetragonal or monoclinic..
13	.....	decomp.	.....	decomposed by acids...	red brown cub.
14	decomp.	1.25	0.83	insoluble alcohol.....	.....
15	.....	0.8°	.....	.....	.....
16	decomp.	v. soluble	v. soluble	soluble alcohol.....	prismatic.....
17	.....	decomp.	decomp.	soluble dil., acids.....	reddish.[clinic
18	.....	3	.....	soluble alcohol.....	pale red mono-
19	.....	0.0031	0.05	insol. alcohol, NH <sub>4</sub> salts..	.....
20	.....	deliques.	v. soluble	.....	.....
21	.....	insoluble	.....	soluble acids.....	rose red.....
22	.....	6.55°	.....	.....	flat prisms....
23	.....	insoluble	decomp.	soluble acids.....	gray. vio. crys.
24	.....	deliques.	.....	.....	rose red.....
25	.....	deliques.	.....	.....	red monoclinic
26	.....	decomp.	decomp.	soluble acids.....	tetrahedral...
27	.....	0.013	insoluble	0.028, CO <sub>2</sub> aq., sol. dil. a.	rose col. rhom-
28	.....	62.16°	123.8°	sol. alcohol; insol. ether	[bohedral
29	106°	151°	656°	sol. alcohol; insol. ether	rose col. mono.
30	.....	soluble	soluble	soluble ether.....	green.....
31	.....	insoluble	.....	sol. HCl; insol. NH <sub>4</sub> salts	.....
32	.....	insoluble	decomp.	insol. al., ether; sol. a..	red prisms....
33	.....	v. soluble	decomp.	soluble acids.....	crystalline....
34	.....	140	v. soluble	soluble alcohol.....	hexagonal....
35	.....	soluble	soluble	.....	monoclinic....
36	.....	insoluble	insoluble	sol. a., NH <sub>4</sub> salts; insol. alk.	hexagonal....
37	.....	insoluble	insoluble	sol. hot conc., H <sub>2</sub> SO <sub>4</sub>	tetragonal....
38	.....	.....	.....	.....	rose red cryst.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Manganese iodide....	MnI <sub>2</sub> .4H <sub>2</sub> O.....	381.00	.....	decomp.
2	lactate.....	Mn(C <sub>3</sub> H <sub>5</sub> O <sub>3</sub> ) <sub>2</sub> .3H <sub>2</sub> O.	287.13	.....	decomp.
3	nitrate.....	Mn(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O...	287.18	1.82	25.8°
3	oxalate.....	MnC <sub>2</sub> O <sub>4</sub> .2½H <sub>2</sub> O....	188.04	2.453 <sup>20°</sup>	dec. 150°
5	oxide -ous.....	MnO.....	71.00	5.09–5.18	white heat
6	“ -ic.....	Mn <sub>2</sub> O <sub>3</sub> .....	158.00	4.325–4.82	.....
7	“ di-.....	MnO <sub>2</sub> .....	87.00	5.026	decomp.
8	“ tri-.....	MnO <sub>3</sub> .....	103.00	.....	decomp.
9	“ hept-.....	Mn <sub>2</sub> O <sub>7</sub> .....	222.00	> 1.84	< –20°
10	phosphate -ous.....	Mn <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .7H <sub>2</sub> O...	481.11	.....	.....
11	“ “ acid .	MnHPO <sub>4</sub> .3H <sub>2</sub> O....	205.06	.....	.....
12	phosphite.....	MnHPO <sub>3</sub> .H <sub>2</sub> O.....	153.03	.....	H <sub>2</sub> O, 200°
13	pyrophosphate.....	Mn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	284.00	3.5847 <sup>20°</sup>	.....
14	“ .....	Mn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .3H <sub>2</sub> O....	338.05	.....	.....
15	silicide.....	MnSi.....	83.40	5.90 <sup>15°</sup>	.....
16	“ di-.....	MnSi <sub>2</sub> .....	111.80	5.24 <sup>13°</sup>	.....
17	“ -ous.....	Mn <sub>2</sub> Si.....	138.40	6.20 <sup>15°</sup>	.....
18	sulphate -ic.....	Mn <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	398.18	.....	decomp.
19	“ -ous.....	MnSO <sub>4</sub> .....	151.06	2.954	decomp.
20	“ “ .....	MnSO <sub>4</sub> .H <sub>2</sub> O.....	169.08	2.845 <sup>15°</sup>	.....
21	“ “ .....	MnSO <sub>4</sub> .2H <sub>2</sub> O.....	187.09	2.526 <sup>15°</sup>	.....
22	“ “ .....	MnSO <sub>4</sub> .3H <sub>2</sub> O.....	205.11	2.356 <sup>15°</sup>	.....
23	“ “ .....	MnSO <sub>4</sub> .4H <sub>2</sub> O *	223.12	2.107	.....
24	“ “ .....	MnSO <sub>4</sub> .5H <sub>2</sub> O.....	241.14	2.09.....	54°
25	“ “ .....	MnSO <sub>4</sub> .6H <sub>2</sub> O.....	259.16	.....	.....
26	“ “ .....	MnSO <sub>4</sub> .7H <sub>2</sub> O.....	277.17	2.092	.....
27	sulphide -ic.....	MnS <sub>2</sub> .....	119.12	3.463	decomp.
28	“ -ous.....	MnS.....	87.06	3.63½°	decomp.
29	“ “ .....	MnS.....	87.06	3.55½°	decomp.
30	“ “ .....	3MnS.H <sub>2</sub> O.....	279.20	.....	decomp.
31	sulphocyanate.....	Mn(CNS) <sub>2</sub> .3H <sub>2</sub> O...	225.25	.....	¶
32	Manganocyanhydric acid	H <sub>4</sub> Mn(CN) <sub>6</sub> .....	215.27	.....	decomp.
33	Manganomanganic oxide	Mn <sub>3</sub> O <sub>4</sub> .....	229.00	4.33–4.9	infusible
34	Mercuriammonium di- ammonium bromide.	NHg <sub>2</sub> Br.NH <sub>4</sub> Br...	592.03	.....	decomp.
35	“ chloride.	.....	.....	.....	.....

\* The ordinary salt.

¶ Loses 3H<sub>2</sub>O at 160°–170°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	deliques.	v. soluble	.....	rose red mono.
2	.....	soluble	v. soluble	.....	amethyst mon.
3	129.4°	v. soluble	v. soluble	v. soluble alcohol.....	.....
4	.....	0.05	0.08 <sup>100°</sup>	sol. dil. acids.....	.....
5	.....	insoluble	insoluble	soluble acids, NH <sub>4</sub> Cl. . .	grass green reg.
6	.....	insoluble	insoluble	soluble acids.....	black regular .
7	.....	insoluble	insoluble	soluble HCl.....	†
8	.....	soluble	decomp.	sol. conc., H <sub>2</sub> SO <sub>4</sub> .....	reddish.....
9	explodes	v. soluble	decomp.	soluble conc. H <sub>2</sub> SO <sub>4</sub> . . .	dark red oil...
10	.....	s. soluble	.....	soluble acids; insol. al..	amorphous . . .
11	.....	s. soluble	decomp.	soluble acids; insol. al..	crystalline....
12	.....	s. soluble	.....	sol. MnCl <sub>2</sub> .MnSO <sub>4</sub> . . . . .	reddish.....
13	.....	insoluble	.....	soluble acids.....	.....
14	.....	insoluble	.....	soluble Mn <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	.....
15	.....	insoluble	insoluble	insoluble acids.....	tetrahedral... .
16	.....	insoluble	insoluble	insol. HNO <sub>3</sub> .H <sub>2</sub> SO <sub>4</sub> sol. HF, alk.	gray octahedra
17	.....	insoluble	insoluble	sol. HCl, NaOH; insol. HNO <sub>3</sub>	quadr. prisms.
18	160°	deliques.	decomp.	sol. conc.,HCl, dil.H <sub>2</sub> SO <sub>4</sub>	green crystals .
19	.....	56.56 <sup>3°</sup>	67 <sup>75°</sup>	sol. al.; insol. ether.....	.....
20	†57° & 117°	98.47 <sup>48°</sup>	79.77 <sup>100°</sup>	.....	.....
21	†40° & 57°	85.27 <sup>35°</sup>	106.85 <sup>55°</sup>	.....	.....
22	†30° & 40°	74.22 <sup>5°</sup>	99.31 <sup>57°</sup>	.....	.....
23	†18° & 30°	81.79 <sup>0°</sup>	111.25 <sup>4°</sup>	insoluble alcohol.....	monoclinic or
24	†8° & 18°	92.62 <sup>0°</sup>	142.15 <sup>4°</sup>	.....	[rhombic
25	†-5° & +8°	110.1 <sup>0°</sup>	134.53 <sup>8°</sup>	.....	.....
26	†-10° & -5	98.35 <sup>0°</sup>	118 <sup>15°</sup>	.....	pale red mono.
27	.....	insoluble	insoluble	decomp. by HCl.....	or rhombic..
28	.....	insoluble	insoluble	insol.(NH <sub>4</sub> ) <sub>2</sub> S; sol.dil. a.	black regular..
29	.....	insoluble	insoluble	insol.(NH <sub>4</sub> ) <sub>2</sub> S; sol. dil. a.	green cryst. . .
30	.....	insoluble	insoluble	insol(NH <sub>4</sub> ) <sub>2</sub> S; sol. dil. a.	red } pink....
31	.....	deliques.	v. soluble	v. soluble alcohol.....	gray }
32	.....	insoluble	.....	insol. ether; v. sol. al...	.....
33	.....	insoluble	insoluble	soluble hot HCl.....	.....
34	.....	decomp.	decomp.	soluble HCl, KI.....	brown tetrag..
35	.....	.....	.....	.....	yellow.....

† Stable between the temperatures given. ‡ Black tetragonal or rhombic.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
	<b>Mercuri ammonium</b>				
	ammonium chloride				
1	infusible white ppt.	NHg <sub>2</sub> Cl.NH <sub>4</sub> Cl. . . . .	503.01	5.700	volatile
2	fusible white ppt..	NHg <sub>2</sub> Cl.3NH <sub>4</sub> Cl. . . . .	610.06	.....	300°
3	ammonium iodide .	NHg <sub>2</sub> I.3NH <sub>4</sub> I. . . . .	764.04	.....	.....
4	“ nitrate .	NHg <sub>2</sub> NO <sub>3</sub> .NH <sub>4</sub> NO <sub>3</sub> . H <sub>2</sub> O	374.21	.....	.....
5	“ sulphate	(NHg <sub>2</sub> ) <sub>2</sub> SO <sub>4</sub> .3(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .4H <sub>2</sub> O	1200.7	.....	.....
6	bromide. . . . .	NHg <sub>2</sub> Br. . . . .	494.00	.....	decomp.
7	chloride. . . . .	NHg <sub>2</sub> Cl. . . . .	449.49	.....	dec. 300°
8	hydroxide. . . . .	NHg <sub>2</sub> OH. . . . .	231.05	.....	explodes
9	iodide. . . . .	NHg <sub>2</sub> I. . . . .	341.01	.....	.....
10	mercuric chloride..	2NHg <sub>2</sub> Cl.HgCl <sub>2</sub> . . . . .	1169.9	.....	dec. 360°
11	nitrate. . . . .	NHg <sub>2</sub> NO <sub>3</sub> . . . . .	276.08	.....	.....
12	sulphate. . . . .	(NHg <sub>2</sub> ) <sub>2</sub> SO <sub>4</sub> .2H <sub>2</sub> O. . . . .	960.17	.....	.....
	<b>Mercuri diammonium</b>				
13	bromide. . . . .	NH <sub>2</sub> HgBr.NH <sub>4</sub> Br. . . . .	394.05	.....	dec. 180°
14	cupric iodide. . . . .	(NH <sub>3</sub> ) <sub>4</sub> .HgI <sub>2</sub> .CuI <sub>2</sub> . . . . .	839.74	.....	.....
15	mercuric chloride..	(NH <sub>3</sub> ) <sub>2</sub> HgCl <sub>2</sub> .HgCl <sub>2</sub> . . . . .	575.93	.....	.....
16	sulphate. . . . .	(NH <sub>3</sub> ) <sub>2</sub> HgSO <sub>4</sub> .H <sub>2</sub> O. . . . .	348.20	.....	H <sub>2</sub> O, 115°
	<b>Mercuro ammonium</b>				
17	chloride. . . . .	NH <sub>3</sub> HgCl. . . . .	252.51	.....	decomp.
18	diammonium ace- tate	(NH <sub>3</sub> ) <sub>2</sub> Hg(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> . H <sub>2</sub> O	370.19	.....	decomp.
	<b>Mercuroxy</b>				
19	ammonium chloride	NH <sub>2</sub> Hg <sub>2</sub> OCl. . . . .	467.51	.....	dec. 200°
20	“ hydrox.	NH <sub>2</sub> Hg <sub>2</sub> OOH. . . . .	449.06	.....	dec. 130°
21	“ iodide .	NH <sub>2</sub> Hg <sub>2</sub> OI. . . . .	559.03	.....	> 128°
22	“ nitrate.	NH <sub>2</sub> Hg <sub>2</sub> ONO <sub>3</sub> . . . . .	494.10	.....	.....
23	“ sulphate	(NH <sub>2</sub> Hg <sub>2</sub> O) <sub>2</sub> SO <sub>4</sub> . . . . .	960.17	.....	decomp.
24	<b>Mercuric acetate...</b>	Hg(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> . . . . .	318.05	3.2544 <sup>22°</sup>	.....
25	arsenate. . . . .	Hg <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> . . . . .	878.00	.....	.....
26	bromate. . . . .	Hg(BrO <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O. . . . .	491.95	.....	*
27	bromide. . . . .	HgBr <sub>2</sub> . . . . .	359.92	5.74	244°
28	carbonate basic. . . . .	2HgO.HgCO <sub>3</sub> . . . . .	692.00	.....	.....
29	chlorate. . . . .	Hg(ClO <sub>3</sub> ) <sub>2</sub> . . . . .	366.90	4.998	decomp.
30	chloride. . . . .	HgCl <sub>2</sub> . . . . .	270.90	5.32–5.46	287°
31	chromate. . . . .	HgCrO <sub>4</sub> . . . . .	316.10	.....	decomp.
32	cyanide. . . . .	Hg(CN) <sub>2</sub> . . . . .	252.08	4.018	decomp.
33	fluoride. . . . .	HgF <sub>2</sub> . . . . .	238.00	.....	.....

\* Decomposes at 130°–140°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	0.14	decomp.	insol. alcohol; sol. acids.	.....
2	.....	insoluble	decomp.	soluble acids, KI.....	red crystals....
3	.....	decomp.	.....	soluble alcohol, ether..	.....
4	.....	insoluble	.....	sol. HNO <sub>3</sub> ; insol. KOH.	.....
5	.....	decomp.	.....	sol. dil. a., NH <sub>4</sub> salts...	.....
6	.....	insoluble	.....	soluble HCl, KI.....	yellow.....
7	.....	insoluble	insoluble	soluble acids, KI.....	yellow.....
8	.....	decomp.	.....	sol. hot, HCl, HNO <sub>3</sub> ...	brown.....
9	.....	insoluble	.....	sol. HCl; dec. by KI...	.....
10	.....	insoluble	insoluble	soluble hot HCl.....	red crystals....
11	.....	insoluble	.....	soluble KI.....	.....
12	.....	insoluble	.....	soluble HCl, KI.....	.....
13	.....	insoluble	.....	soluble HCl, H <sub>2</sub> SO <sub>4</sub> ....	rhombohedral..
14	.....	decomp.	.....	sol. alcohol + H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ..	.....
15	.....	insoluble	decomp.	.....	.....
16	decomp.	decomp.	decomp.	sol. acids, NH <sub>4</sub> salts....	orthorhombic..
17	.....	insoluble	.....	.....	black.....
18	.....	v. soluble	.....	s. soluble alcohol.....	rectangular plates.....
19	.....	s. soluble	.....	soluble HCl, HNO <sub>3</sub> ...	yellow..[rhomb.
20	.....	0.007 <sup>17°</sup>	0.06 <sup>80°</sup>	.....	yellow brown
21	explodes	.....	.....	soluble HCl, KI.....	brown.....
22	.....	insoluble	.....	.....	.....
23	.....	s. soluble	.....	soluble HCl, HNO <sub>3</sub> ....	white and yel..
24	.....	25 <sup>10°</sup>	100 <sup>100°</sup>	soluble alcohol.....	micaceous scales
25	.....	s. soluble	.....	sol. HCl, HNO <sub>3</sub> .....	.....
26	.....	0.17°	1.6	sol. HNO <sub>3</sub> , HCl, Hg(NO <sub>3</sub> ) <sub>2</sub>	crystalline.....
27	†	1.06 <sup>9°</sup>	20–25 <sup>100°</sup>	soluble alcohol, ether..	rhombic.....
28	.....	insoluble	.....	.....	brown red.....
29	.....	25°	.....	.....	needles.....
30	303°–307°	5.73 <sup>0°</sup>	53.96 <sup>100°</sup>	43.5 al., 33 ether.....	rhombic.....
31	.....	s. soluble	decomp.	decomposed by acids...	dark red trim...
32	.....	12.5 <sup>15°</sup>	53	5 alcohol.....	tetragonal.....
33	.....	decomp.	.....	.....	crystalline.....

† Sublimes at 319°–325°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H = 1 (D).	Melting Point, °C.
1	Mercuric fluosilicate.	$\text{HgSiF}_6\text{HgO} \cdot 3\text{H}_2\text{O}$	612.45	.....	.....
2	fulminate.....	$\text{HgC}_2\text{N}_2\text{O}_2$	284.08	4.42	explodes
3	hydrate.....	$\text{Hg}(\text{OH})_2$	234.02	.....	$\text{H}_2\text{O}$ , 175°
4	iodate.....	$\text{Hg}(\text{IO}_3)_2$	549.94	.....	.....
5	iodide red.....	$\text{HgI}_2$	453.94	6.2–6.32	241°–257°
6	“ yellow.....	$\text{HgI}_2$	453.94	5.91–6.06	241°
7	iodo bromide.....	$\text{HgIBr}$	406.93	.....	229°
8	“ chloride.....	$\text{HgICl}$	362.42	.....	153°
9	nitrate.....	$2\text{Hg}(\text{NO}_3)_2 \cdot \text{H}_2\text{O}$	542.10	.....	decomp.
10	nitride.....	$\text{Hg}_3\text{N}_2$	628.08	.....	explodes
11	oxalate.....	$\text{HgC}_2\text{O}_4$	288.00	.....	decomp.
12	oxide.....	$\text{HgO}$	216.00	11.00–11.29	decomp.
13	oxybromide.....	$\text{HgBr}_2 \cdot 3\text{HgO}$	1007.9	.....	.....
14	oxychloride.....	$\text{HgCl}_2 \cdot 3\text{HgO}$	918.90	8.670	.....
15	oxycyanide.....	$\text{Hg}(\text{CN})_2 \cdot \text{HgO}$	468.08	4.137 <sup>19</sup>	explodes
16	oxyfluoride.....	$\text{HgF}_2 \cdot \text{HgO} \cdot \text{H}_2\text{O}$	472.02	.....	dec. 100°
17	oxyiodide.....	$\text{HgI}_2 \cdot 3\text{HgO}$	1101.9	.....	.....
18	phosphate.....	$\text{Hg}_3(\text{PO}_4)_2$	790.00	.....	.....
19	potassium iodide..	$2\text{HgI}_2 \cdot 2\text{KI} \cdot 3\text{H}_2\text{O}$	1294.2	4.289 <sup>23.5</sup>	.....
20	selenide.....	$\text{HgSe}$	279.20	7.1–8.877	sublimes
21	sulphate.....	$\text{HgSO}_4$	296.06	6.466	dec. red ht.
22	“ basic.....	$\text{HgSO}_4 \cdot 2\text{HgO}$	728.06	6.44	.....
23	sulphide.....	$\text{HgS}$	232.06	7.55–7.70	.....
24	“ .....	$\text{HgS}$	232.06	8.06–8.12	sublimes
25	sulphocyanate.....	$\text{Hg}(\text{CNS})_2$	316.20	.....	decomp.
26	Mercurous acetate...	$\text{Hg}_2(\text{C}_2\text{H}_3\text{O}_2)_2$	518.05	.....	decomp.
27	arsenate acid.....	$\text{Hg}_2\text{HAsO}_4$	540.01	.....	decomp.
28	“ .....	$\text{Hg}_3\text{AsO}_4$	739.00	.....	decomp.
29	bromate.....	$\text{Hg}_2(\text{BrO}_3)_2$	655.92	.....	decomp...
30	bromide.....	$\text{HgBr}$	279.96	7.307	.....
31	carbonate.....	$\text{Hg}_2\text{CO}_3$	460.00	.....	dec. 130°
32	chlorate.....	$\text{HgClO}_3$	283.45	6.409	decomp.
33	chloride.....	$\text{HgCl}$	235.45	6.993–7.18	sublimes
34	“ .....	$\text{HgCl}$	235.45	6.482	at 400°–500°
35	chromate.....	$\text{Hg}_2\text{CrO}_4$	516.10	.....	decomp.
36	fluoride.....	$\text{HgF}$	219.00	.....	dec. 200°

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	decomp.	.....	soluble acids.....	yellow needles
2	.....	s. soluble	soluble	sol. alcohol, $\text{NH}_3$ .....	octahedra....
3	.....	insoluble	.....	soluble acids....[ $\text{HNO}_3$ .....	.....
4	.....	insoluble	.....	sol. $\text{NH}_4\text{Cl}$ , $\text{HCl}$ ; insol.	.....
5	349°	0.004 <sup>17.5°</sup>	.....	{ 1.186 <sup>18°</sup> alcohol; sol.	red tetragonal.
6	349°	insoluble	.....	{ $\text{Na}_2\text{S}_2\text{O}_3$ , alk. salts	yellow rhomb.
7	360°	.....	.....	soluble ether.....	yellow rhomb.
8	315°	insoluble	s. soluble	soluble alcohol.....	yel. rhomb. or red tetrag.
9	.....	v. soluble	decomp.	sol. $\text{HNO}_3$ , insol. alcohol	crystalline....
10	.....	decomp.	.....	decomp. by acids.....	brown powder
11	.....	insoluble	insoluble	sol. $\text{HCl}$ ; s. sol. $\text{HNO}_3$ ..	{ yellow tetrag.
12	.....	0.00515 <sup>25°</sup>	0.0395 <sup>100°</sup>	insoluble alcohol; sol. a.	{ plates or red moncl. prisms
13	.....	insoluble	s. soluble	v. soluble alcohol.....	yellow crystals
14	.....	insoluble	decomp.	.....	yellow prisms
15	.....	s. soluble	.....	.....	needles.....
16	.....	decomp.	.....	soluble $\text{HNO}_3$ .....	yellow crystals
17	.....	decomp.	.....	soluble $\text{HI}$ .....	yellow brown
18	.....	insoluble	s. soluble	sol. a., $\text{NH}_4\text{Cl}$ ; insol. al.	.....
19	.....	decomp.	.....	soluble alcohol, ether ..	.....
20	.....	insoluble	.....	soluble aqua regia.....	gray laminal..
21	.....	decomp.	.....	soluble a., insol. al.....	.....
22	.....	0.002	.....	soluble a., insol. al.....	yellow.....
23	.....	0.0025	.....	sol. $\text{Na}_2\text{S}$ ; insol. $\text{HNO}_3$ ..	black amorph.
24	.....	insoluble	insoluble	soluble aqua regia.....	rhomboh. or red hexag.
25	.....	s. soluble	soluble	sol. alcohol, $\text{NH}_4$ salts..	..... [scales
26	.....	0.75 <sup>13°</sup>	.....	sol. $\text{H}_2\text{SO}_4$ , $\text{HNO}_3$ .....	micaceous
27	.....	insoluble	.....	soluble $\text{HNO}_3$ .....	yellow to red .
28	.....	insoluble	.....	soluble $\text{HNO}_3$ ; insoluble $\text{H.C}_2\text{H}_3\text{O}_2$	dark red .....
29	.....	decomp.	.....	sol. $\text{HNO}_3$ , $\text{HCl}$ , $\text{HgNO}_3$	crystalline....
30	340°–405°	insoluble	insoluble	sol. acids; insol. al.....	yellow tetrag..
31	.....	insoluble	decomp.	soluble $\text{NH}_4\text{Cl}$ .....	black or yellow
32	.....	soluble	decomp.	sol. al., $\text{HC}_2\text{H}_3\text{O}_2$ .....	columnar crys.
33	.....	0.00031	0.01	{ insol. al., ether; sol. $\text{Hg}(\text{NO}_3)_2$ , aq. r.	rhombic.....
34	.....	0.00031	0.01	{ s. sol. hot., $\text{HNO}_3$ , $\text{HCl}$	tetragonal....
35	.....	s. soluble	soluble	soluble $\text{HNO}_3$ , $\text{KCN}$ ...	red crystals...
36	.....	decomp.	.....	.....	yellow monocl.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	<b>Mercurous fluosilicate</b>	Hg <sub>2</sub> SiF <sub>6</sub> .2H <sub>2</sub> O.....	578.43	.....	.....
2	formate.....	HgCHO <sub>2</sub> .....	245.01	.....	decomp.
3	iodate.....	HgIO <sub>3</sub> .....	374.94	.....	decomp.
4	iodide.....	HgI.....	326.97	7.70	290°
5	nitrate.....	HgNO <sub>3</sub> .2H <sub>2</sub> O.....	298.07	4.78	decomp.
6	oxalate.....	Hg <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .....	488.00	.....	.....
7	oxide.....	Hg <sub>2</sub> O.....	416.00	8.95–10.69	decomp.
8	phosphate.....	Hg <sub>3</sub> PO <sub>4</sub> .....	679.00	.....	.....
9	sulphate.....	Hg <sub>2</sub> SO <sub>4</sub> .....	496.06	7.56.....	melts....
10	sulphide.....	Hg <sub>2</sub> S.....	432.06	.....	dec. at 0°
11	sulphocyanate.....	HgCNS.....	258.10	.....	decomp.
12	trinitride.....	HgN <sub>3</sub> .....	242.12	.....	explodes
13	<b>Mercury</b> .....	Hg.....	200.0	13.5953‡	–38.85°
14	<b>Molybdenum</b> .....	Mo.....	96.0	8.6–9.01	*
15	bromhydroxide....	Mo <sub>3</sub> Br <sub>4</sub> (OH) <sub>2</sub> .....	641.86	.....	.....
16	bromide di-.....	MoBr <sub>2</sub> .....	255.92	.....	.....
17	“ tri-.....	MoBr <sub>3</sub> .....	335.88	.....	†
18	“ tetra-.....	MoBr <sub>4</sub> .....	415.84	.....	decomp.
19	carbide.....	MoC.....	108.00	8.4 <sup>20°</sup>	decomp.
20	chloride di-.....	MoCl <sub>2</sub> .....	166.90	.....	decomp.
21	“ tri-.....	MoCl <sub>3</sub> .....	202.35	.....	decomp.
22	“ tetra-.....	MoCl <sub>4</sub> .....	237.80	.....	.....
23	“ penta-.....	MoCl <sub>5</sub> .....	273.25	9.5 <sup>350°</sup>	194°
24	chlorohydroxide...	Mo <sub>3</sub> Cl <sub>4</sub> (OH) <sub>2</sub> .2H <sub>2</sub> O..	499.85	.....	.....
25	oxide di-.....	MoO <sub>2</sub> .....	128.00	6.44 <sup>10°</sup>	.....
26	“ sesqui-.....	Mo <sub>2</sub> O <sub>3</sub> .....	240.00	.....	.....
27	“ tri-.....	MoO <sub>3</sub> .....	144.00	4.39 <sup>21°</sup>	759°
28	oxybromide.....	MoO <sub>2</sub> Br <sub>2</sub> .....	287.92	.....	sublimes
29	oxychloride.....	MoOCl <sub>4</sub> .....	253.80	.....	<100°
30	“ .....	MoO <sub>2</sub> Cl <sub>2</sub> .....	198.90	.....	sublimes
31	“ .....	MoOCl <sub>3</sub> .....	218.35	.....	sublimes
32	“ .....	Mo <sub>2</sub> O <sub>3</sub> Cl <sub>3</sub> .....	417.25	.....	sublimes
33	phosphide.....	Mo <sub>3</sub> P <sub>2</sub> .....	350.00	6.17	oxidizes
35	sulphide di-.....	MoS <sub>2</sub> .....	160.12	4.80 <sup>14°</sup>	oxidizes
35	“ “ .....	MoS <sub>2</sub> (Mineral).....	160.12	4.44–4.80	.....
36	“ tri-.....	MoS <sub>3</sub> .....	192.18	.....	loses S

\* Melts above white heat.                      † Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		s. soluble			prismatic cryst.
2		0.417°	decomp.		glistening scales
3		insoluble	insoluble	soluble dil. HCl.	yellowish.
4	310°	0.0417		sol. KI; insol. alcohol.	yellow tetrag.
5		v. soluble	decomp.		monoclinic.
6		insoluble	insoluble	s. sol. HNO <sub>3</sub> .	
7		insoluble	insoluble	sol. glac., HC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> , insol. alk.	black.
8		insoluble	decomp.	soluble HNO <sub>3</sub> .	
9	decomp.	0.2	0.33	soluble H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> .	monoclinic.
10		insoluble		insol. acids, (NH <sub>4</sub> ) <sub>2</sub> S.	black.
11		insoluble		soluble HCl, KCNS.	
12		insoluble			crystalline.
13	357.33°	insoluble	insoluble	sol. HNO <sub>3</sub> , conc. H <sub>2</sub> SO <sub>4</sub> ; insol. HCl	silvery octahed.
14		insoluble	insoluble	sol. HNO <sub>3</sub> , conc. H <sub>2</sub> SO <sub>4</sub> aq. r.	gray.
15				soluble KOH.	red powder.
16		insoluble	insoluble	soluble alk., insol. a.	yellow.
17		insoluble	insoluble	insol. a., dec. by alk.	dark green need.
18	volatile	v. soluble			black needles.
19		insoluble	insoluble	sol. HNO <sub>3</sub> , HF, hot conc. H <sub>2</sub> SO <sub>4</sub>	gray prisms.
20		insoluble	insoluble	sol. acids, al., ether.	yellow amorph.
21		insoluble	decomp.	sol. HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , al.	red needles.
22		deliques.	decomp.	sol. HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , al.	brown crystals.
23	268°	deliques	decomp.	soluble HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , al.	black crystals.
24		insoluble		soluble acids; insol. al.	yellow amorph.
25		insoluble		s. sol., conc. H <sub>2</sub> SO <sub>4</sub> , insol. KOH	red prisms.
26		insoluble		insoluble acids, alkalies	black to yellow.
27	sublimes	0.10718°	1.70570°	soluble acids, NH <sub>3</sub> aq.	rhombic.
28		soluble			yellow crystals.
29	‡	soluble	decomp.		green.
30		soluble		soluble alcohol.	yellow to white.
31		deliques.		soluble acids.	green.
32		deliques.	soluble		dk. brown crys.
33		insoluble		soluble hot, HNO <sub>3</sub> .	gray crystals.
34		insoluble		sol. H <sub>2</sub> SO <sub>4</sub> , aqua regia.	black powder.
35		insoluble			
36		s. soluble	soluble	sol. alk., sulphides.	red brown.

‡ Sublimes below 100°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
	<b>Molybdenum</b>				
1	" tetra-.....	MoS <sub>4</sub> .....	224.24	.....	oxidizes
2	<b>Molybdic Acid</b> .....	H <sub>2</sub> MoO <sub>4</sub> .....	162.02	.....	.....
3	" .....	H <sub>2</sub> MoO <sub>4</sub> .H <sub>2</sub> O.....	180.03	3.124 <sup>15°</sup>	H <sub>2</sub> O, 70°
4	<b>Neodymium</b> .....	Nd.....	143.6	6.9563	840°
5	carbide.....	NdC <sub>2</sub> .....	167.6	5.15	decomp.
6	chloride.....	NdCl <sub>3</sub> .6H <sub>2</sub> O.....	358.05	2.282 <sup>16.5</sup> / <sub>4</sub>	5H <sub>2</sub> O, 105°
7	oxide.....	Nd <sub>2</sub> O <sub>3</sub> .....	335.2	.....	.....
8	sulphide.....	Nd <sub>2</sub> S <sub>3</sub> .....	383.38	5.179 <sup>11°</sup>	decomp.
9	<b>Neon</b> .....	Ne.....	20.	{ 0.674 A .. 9.96 D	.....
10	<b>Nickel</b> .....	Ni.....	58.7	8.6–8.93	1484°
11	acetate.....	Ni(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .....	176.75	1.799	decomp.
12	ammon. chloride ..	NiCl <sub>2</sub> .NH <sub>4</sub> Cl.6H <sub>2</sub> O	291.22	.....	.....
13	" sulphate..	NiSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 6H <sub>2</sub> O	395.06	1.929 <sup>10</sup>	.....
14	arsenide.....	NiAs.....	133.70	7.663	.....
15	arsenite.....	Ni <sub>3</sub> H <sub>6</sub> (AsO <sub>3</sub> ) <sub>4</sub> .H <sub>2</sub> O ..	692.16	.....	decomp.
16	boride.....	NiB.....	69.7	7.39 <sup>18°</sup>	.....
17	bromate.....	Ni(BrO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	422.72	2.575	decomp.
18	bromide.....	NiBr <sub>2</sub> .....	218.62	4.64 <sup>11</sup>	decomp.
19	" .....	NiBr <sub>2</sub> .3H <sub>2</sub> O.....	272.67	.....	3H <sub>2</sub> O, 200°
20	" ammonia ..	NiBr <sub>2</sub> .6NH <sub>3</sub> .....	320.94	1.837	.....
21	carbonate.....	NiCO <sub>3</sub> .....	118.70	.....	decomp.
22	" basic....	2NiCO <sub>3</sub> .3Ni(OH) <sub>2</sub> . 4H <sub>2</sub> O	587.61	.....	decomp.
23	carbonyl.....	Ni(CO) <sub>4</sub> .....	170.70	1.3185 <sup>17°</sup>	– 25°
24	chloride.....	NiCl <sub>2</sub> .....	129.60	2.56	sublimes
25	chloride.....	NiCl <sub>2</sub> .6H <sub>2</sub> O.....	237.70	.....	.....
26	" ammonia	NiCl <sub>2</sub> .6NH <sub>3</sub> .....	231.92	.....	.....
27	cyanide.....	Ni(CN) <sub>2</sub> .4H <sub>2</sub> O.....	110.8	.....	4H <sub>2</sub> O, 200°
28	ferrocyanide.....	Ni <sub>2</sub> Fe(CN) <sub>6</sub> .11H <sub>2</sub> O..	527.72	.....	.....
29	fluoride.....	NiF <sub>2</sub> .....	96.70	2.855 <sup>14°</sup>	.....
30	" acid.....	NiF <sub>2</sub> .5HF.6H <sub>2</sub> O....	304.84	2.132	.....
31	fluosilicate.....	NiSiF <sub>6</sub> .6H <sub>2</sub> O.....	309.20	2.109	†
32	formate.....	Ni(CHO <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O ...	184.75	2.1547	decomp.

\* Loses 6H<sub>2</sub>O at 160°.

† Decomposes at red heat.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	insoluble	.....	soluble alk., sulphide ..	brown powder..
2	.....	s. soluble	.....	soluble $\text{NH}_3$ aq. ....	needles.....
3	.....	0.133 <sup>18°</sup>	2.137 <sup>70°</sup>	sol. acids, $\text{NH}_3$ aq., $\text{NH}_4$ salts	yellow monocl..
4	.....	decomp.	.....	.....	yellowish.....
5	.....	decomp.	decomp.	sol. dil. a., conc. $\text{H}_2\text{SO}_4$	yellow hexag...
6 *	.....	246 <sup>13°</sup>	511.6 <sup>100°</sup>	soluble alcohol.....	red rhombic ...
7	.....	insoluble	.....	soluble $\text{HCl}$ .....	reddish.....
8	.....	insoluble	decomp.	soluble dil. acids .....	olive green ...
9	-243 to -233	.....	.....	.....	.....
10	.....	insoluble	insoluble	sol. dil. $\text{HNO}_3$ ; s. sol. $\text{HCl}$ , $\text{H}_2\text{SO}_4$	.....
11	.....	16.6	.....	insoluble alcohol.....	apple gr. prisms
12	.....	v. soluble	.....	.....	green crystals..
13	.....	2.53 <sup>5°</sup>	39.28 <sup>5°</sup>	s. sol. $(\text{NH}_4)_2\text{SO}_4$ aq....	green crystals..
14	.....	insoluble	nsoluble	soluble aqua regia.....	.....
15	.....	insoluble	.....	soluble alkalies, acids..	greenish white .
16	.....	decomp.	decomp.	soluble $\text{HNO}_3$ .....	prisms.. [octah.
17	.....	28	.....	.....	monometric
18	.....	deliques. and soluble	.....	soluble alcohol, ether ..	yellow scales...
19	.....	v. soluble	.....	sol. al., ether, $\text{NH}_3$ aq...	green needles..
20	.....	v. soluble	decomp.	.....	violet powder..
21	.....	insoluble	insoluble	insoluble acids.....	greenish rhomb.
22	.....	insoluble	decomp.	soluble acids, $\text{NH}_4$ salts	green.....
23	43°	insoluble	insoluble	sol. al., $\text{CH}_3\text{Cl}$ , conc. $\text{HNO}_3$	needles.....
24	.....	deliques. and soluble	.....	sol. alcohol, $\text{NH}_3$ aq....	yellow scales...
25	.....	50	soluble	v. soluble alcohol.....	green hexagonal
26	.....	soluble	decomp.	insol. al.; sol. $\text{NH}_3$ aq ..	.....
27	decomp.	insoluble	insoluble	sol. $\text{KCN}$ ; insol. dil. $\text{KCl}$	apple green pl..
28	.....	insoluble	.....	insol. $\text{HCl}$ ; sol. $\text{NH}_3$ aq ..	greenish white..
29	.....	0.02	.....	insol. a., al., ether.....	.....
30	.....	.....	.....	.....	trimetric prisms
31	.....	v. soluble	.....	.....	green rhomboh.
32	.....	soluble	.....	.....	green crystals..

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Nickel hydroxide -ous	4Ni(OH) <sub>2</sub> .H <sub>2</sub> O . . . . .	388.88	4.36	decomp.
2	“ -ic . . . . .	Ni(OH) <sub>3</sub> . . . . .	109.72	.....	decomp.
3	iodide . . . . .	NiI <sub>2</sub> . . . . .	312.64	.....	sublimes
4	“ ammonia . . . . .	NiI <sub>2</sub> .6NH <sub>3</sub> . . . . .	414.96	2.101	decomp.
5	nitrate . . . . .	Ni(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O . . . . .	290.88	2.065 <sup>14°</sup>	56.7°
6	“ ammonia . . . . .	Ni(NO <sub>3</sub> ) <sub>2</sub> .4NH <sub>3</sub> . 2H <sub>2</sub> O	287.03	.....	.....
7	oxide mon- . . . . .	NiO . . . . .	74.70	6.6–6.8	* †
8	“ sesqui- . . . . .	Ni <sub>2</sub> O <sub>3</sub> . . . . .	165.40	4.84 <sup>16°</sup>	†
9	oxyiodide . . . . .	NiI <sub>2</sub> .9NiO.15H <sub>2</sub> O . . . . .	1255.2	.....	.....
10	phosphate . . . . .	Ni <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .7H <sub>2</sub> O . . . . .	492.21	.....	.....
11	phosphide . . . . .	Ni <sub>3</sub> P <sub>2</sub> . . . . .	238.10	5.99	.....
12	“ . . . . .	Ni <sub>2</sub> P . . . . .	148.4	6.3 <sup>15°</sup>	.....
13	pyrophosphate . . . . .	Ni <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .6H <sub>2</sub> O . . . . .	399.50	†3.9303 <sup>25°</sup>	.....
14	potassium cyanide . . . . .	Ni(CN) <sub>2</sub> .2KCN.H <sub>2</sub> O	259.18	1.875 <sup>11°</sup>	H <sub>2</sub> O, 100°
15	selenide . . . . .	NiSe . . . . .	137.90	8.46	.....
16	sulphate . . . . .	NiSO <sub>4</sub> . . . . .	154.76	3.418 <sup>15°</sup>	.....
17	“ . . . . .	NiSO <sub>4</sub> .6H <sub>2</sub> O . . . . .	262.86	2.031	6H <sub>2</sub> O, 280°
18	“ . . . . .	NiSO <sub>4</sub> .7H <sub>2</sub> O . . . . .	280.87	1.98	98°–100°
19	sulphide mono- . . . . .	NiS . . . . .	90.76	4.60	.....
20	“ sub- . . . . .	Ni <sub>2</sub> S . . . . .	149.46	5.52	.....
21	sulphite . . . . .	NiSO <sub>3</sub> .6H <sub>2</sub> O . . . . .	246.86	.....	.....
22	Nickelo-nickelic oxide	Ni <sub>3</sub> O <sub>4</sub> . . . . .	240.10	.....	.....
23	sulphide . . . . .	Ni <sub>3</sub> S <sub>4</sub> . . . . .	304.34	.....	.....
24	Nitric Acid . . . . .	HNO <sub>3</sub> . . . . .	63.05	1.530 <sup>18</sup>	–41.3
25	Nitrogen . . . . .	N <sub>2</sub> . . . . .	28.08	0.96737 A.	–210.5°†
26	bromophosphide . . . . .	NPBr <sub>2</sub> . . . . .	204.96	.....	.....
27	chloride . . . . .	NCl <sub>3</sub> . . . . .	120.39	1.653	expl. 95°
28	chlorophosphide . . . . .	N <sub>3</sub> P <sub>3</sub> Cl <sub>6</sub> . . . . .	347.82	1.98	114°
29	iodoazoimide . . . . .	NH <sub>3</sub> NI <sub>3</sub> . . . . .	412.01	3.5	explodes
30	oxide mon-(nitrous)	N <sub>2</sub> O . . . . .	44.08	.937 <sup>0</sup> 1.530 A	–102.3°
31	“ di- (nitric) . . . . .	NO(N <sub>2</sub> O <sub>2</sub> ) . . . . .	30.04	1.0367 A	150° . . . . .
32	oxide tri- . . . . .	N <sub>2</sub> O <sub>3</sub> . . . . .	76.08	1.447 <sup>–2°</sup>	–111°
33	“ tetr- . . . . .	NO <sub>2</sub> (N <sub>2</sub> O <sub>4</sub> ) . . . . .	46.04	1.4903 <sup>‡</sup>	–10.1°

\* Absorbs oxygen at 400°.

† Is reduced to NiO at 600°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	insoluble	.....	sol. a., $\text{NH}_3\text{aq.}$ insol. alk.	pale green.....
2	.....	insoluble	insoluble	soluble acids, $\text{NH}_3\text{aq.}$ ...	black.....
3	.....	soluble	.....	.....	black scales....
4	.....	decomp.	.....	soluble $\text{NH}_3\text{aq.}$ .....	.....
5	136.7°	50	v. soluble	soluble alcohol, $\text{NH}_3\text{aq.}$	green monocl...
6	.....	v. soluble	.....	insoluble alcohol.....	.....
7	.....	insoluble	.....	soluble acids, $\text{NH}_3\text{aq.}$ ...	green octahedral
8	.....	insoluble	.....	soluble $\text{HCl}$ , $\text{NH}_3\text{aq.}$ ....	black.....
9	.....	insoluble	.....	sol. $\text{HNO}_3$ ; insol. $\text{NH}_3\text{aq.}$	.....
10	.....	insoluble	insoluble	soluble acids, $\text{NH}_4$ salts	green.....
11	.....	insoluble	insoluble	insoluble $\text{HCl}$ .....	dark green.....
12	.....	insoluble	.....	insol. a.; sol. $\text{HNO}_3 + \text{HF}$	gray crystals...
13	.....	insoluble	.....	soluble acids, $\text{NH}_3\text{aq.}$ ...	green... [clinic
14	.....	soluble	.....	decomp. by acids.....	red yel. mono-
15	.....	insoluble	.....	sol. $\text{HNO}_3$ , aqua regia...	crystalline.....
16	.....	29.30°	83.7100°	insoluble alcohol, ether.	yellow regular..
17	.....	soluble	soluble	v. soluble al., $\text{NH}_3\text{aq.}$ ....	bluish tetrag..
18	§	75.615.5°	226.470°	v. soluble alcohol.....	green. monocl.
19	.....	insoluble	decomp.	sol. $\text{HNO}_3$ , aqua regia...	green rhombic
20	.....	insoluble	.....	soluble $\text{HNO}$ .....	or monoclinic
21	.....	insoluble	.....	soluble $\text{HCl}$ , $\text{H}_2\text{SO}_3$ ....	black hexag....
22	.....	insoluble	.....	soluble acids.....	yellow crystals.
23	.....	insoluble	.....	soluble $\text{HNO}_3$ .....	green tetrahed..
24	86°	∞	.....	∞	gray.....
25	-195.5°	2.348c.c.0°	1.542c.c.20°	s. soluble alcohol.....	grayish black
26	.....	insoluble	.....	sol. ether, $\text{CS}_2$ , $\text{CHCl}_3$ ...	rhombohedral
27	.....	insoluble	decomp.	sol. $\text{CS}_2$ , $\text{PCl}_3$ , $\text{CHCl}_3$ ...	.....
28	255°	decomp.	.....	sol. al., ether, $\text{CHCl}_3$ ...	yellowish oil...
29	.....	decomp.	explodes	sol. $\text{HCl}$ , $\text{KCN}$ , $\text{Na}_2\text{S}_2\text{O}_3$	trimetric.....
30	-89.8°	130.520°	60.8224°	insol. ab. al.	red ortho-
31	-149.9°	10c.c.	.....	soluble al., conc. $\text{H}_2\text{SO}_4$	rhombic.....
32	decomp.	soluble	.....	3.5 c.c. conc. $\text{H}_2\text{SO}_4$ , 26.6 al., $\text{FeSO}_4\text{aq.}$	.....
33	21.64°	soluble	.....	sol. $\text{HNO}_3$ , $\text{H}_2\text{SO}_4$ , ether	blue solid, or red
				sol. $\text{CS}_2$ , $\text{CHCl}_3$ , conc. $\text{HNO}_3$ , $\text{H}_2\text{SO}_4$	brown gas reddish yellow.

‡ The anhydrous salt.

§ Loses  $6\text{H}_2\text{O}$  at 103°.

¶ At 84 mm.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water= 1. Air= 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
	<b>Nitrogen</b>				
1	oxide pent- . . . . .	N <sub>2</sub> O <sub>5</sub> . . . . .	108.08	1.642 <sup>18°</sup>	30°
2	oxy bromide . . . . . (nitrosyl bromide)	NOBr . . . . .	110.00	> 1.0	- 2°
3	oxychloride . . . . . (nitrosyl chloride)	NOCl . . . . .	65.49	1.4165- <sup>12°</sup>	- 60°
4	selenide . . . . .	NSe . . . . .	93.24	.....	explodes
5	sulphide . . . . .	N <sub>4</sub> S <sub>4</sub> . . . . .	184.40	2.22 <sup>15°</sup>	158°
6	“ penta- . . . . .	N <sub>2</sub> S <sub>5</sub> . . . . .	188.38	1.901 <sup>4°</sup>	10°-11°
7	sulphochloride . . . . .	NS <sub>2</sub> Cl . . . . .	113.61	.....	decomp.
8	Nitryl fluoride . . . . .	NO <sub>2</sub> F . . . . .	65.04	2.24 A.	- 139°
9	Osmium . . . . .	Os . . . . .	191	{ ..... 22.48	2500° 2500°
10	ammonium trichlo- ride	2(OsCl <sub>3</sub> .2NH <sub>4</sub> Cl) 3H <sub>2</sub> O	862.84	.....	.....
11	chloride di- . . . . .	OsCl <sub>2</sub> . . . . .	261.90	.....	.....
12	“ tri- . . . . .	OsCl <sub>3</sub> .3H <sub>2</sub> O . . . . .	351.40	.....	.....
13	“ tetra- . . . . .	OsCl <sub>4</sub> . . . . .	332.80	.....	.....
14	oxide mon- . . . . .	OsO . . . . .	207.00	.....	.....
15	“ sesqui- . . . . .	Os <sub>2</sub> O <sub>3</sub> . . . . .	430.00	.....	.....
16	“ di- . . . . .	OsO <sub>2</sub> . . . . .	223.00	.....	.....
17	“ tetra- . . . . .	OsO <sub>4</sub> . . . . .	255.00	8.89	20°
18	potassium tri- chloride	2(OsCl <sub>3</sub> .3KCl)6H <sub>2</sub> O	1150.4	.....	†
19	potassium tetra- chloride	OsCl <sub>4</sub> .2KCl . . . . .	482.00	.....	¶
20	sulphide di- . . . . .	OsS <sub>2</sub> . . . . .	255.12	.....	.....
21	“ tetra- . . . . .	OsS <sub>4</sub> . . . . .	319.24	.....	oxidizes
22	sulphite . . . . .	OsSO <sub>3</sub> . . . . .	271.06	.....	.....
23	Oxalic Acid . . . . .	H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O . . . . .	126.05	1.653 <sup>18.5°</sup>	98°
24	Oxygen . . . . .	O <sub>2</sub> . . . . .	32.00	1.10535 A.	< - 230°
25	Ozone . . . . .	O <sub>3</sub> . . . . .	48.00	1.658 A.	dec. 270°
26	Palladium . . . . .	Pd . . . . .	106.5	11.4-11.9	1541°
27	bromide . . . . .	PdBr <sub>2</sub> . . . . .	266.42	.....	.....
28	chloride . . . . .	PdCl <sub>2</sub> .2H <sub>2</sub> O . . . . .	213.43	.....	.....
29	cyanide . . . . .	Pd(CN) <sub>2</sub> . . . . .	158.58	.....	decomp.
30	fluoride . . . . .	PdF <sub>2</sub> . . . . .	144.50	.....	.....
31	hydride . . . . .	Pd <sub>2</sub> H . . . . .	214.01	11.06	decomp.
32	hydroxide . . . . .	Pd(OH) <sub>2</sub> . . . . .	140.52	.....	.....
33	iodide . . . . .	PdI <sub>2</sub> . . . . .	360.44	.....	100°

\* At 751 mm. † Sublimes at 135°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	45°–50°	soluble	.....	.....	rhombic.....
2	.....	decomp.	decomp.	.....	dark brown....
3	–5.6°*	decomp.	.....	.....	solid, lem. yel. crys., or. red.
4	200°	insoluble	.....	soluble HNO <sub>3</sub> , CS <sub>2</sub> .....	orange yellow..
5	†	insoluble	decomp.	sol. CS <sub>2</sub> , al., ether.....	orange red rhomb. prisms
6	decomp.	insoluble	.....	s. sol. CS <sub>2</sub> , alcohol.....	red.....
7	.....	soluble	decomp.	soluble CS <sub>2</sub> .....	citron yellow...
8	–63.5°	decomp.	.....	.....	.....
9	.....	insoluble	insoluble	s. sol. HNO <sub>3</sub> , aqua regia	bluish amorph..
10	.....	insoluble	insoluble	insol. acids, aqua regia.	bluish.....
10	.....	v. soluble	decomp.	v. sol. al.; insol. ether..	red. brown crys.
11	.....	soluble	.....	sol. al., ether, NaCl.....	green needles..
12	.....	soluble	.....	.....	.....[needles
13	.....	soluble	.....	soluble HCl, alcohol...	red to yellow
14	.....	insoluble	insoluble	insoluble acids.....	grayish black..
15	.....	insoluble	.....	insoluble acids.....	black.....
16	.....	insoluble	.....	insoluble acids.....	copper red.....
17	100°	v. soluble	v. soluble	sol. al., ether, NH <sub>3</sub> aq..	monoclinic....
18	.....	v. soluble	.....	v. soluble al.; insol. ether	dark red cryst..
19	.....	s. soluble	.....	insoluble al., HCl.....	red octahedra..
20	.....	s. soluble	.....	insoluble alkalies.....	brownish yel...
21	.....	insoluble	.....	soluble HNO <sub>3</sub> insol. alk.	brownish black.
22	.....	insoluble	.....	soluble HCl.....	bluish black...
23	.....	11.1 <sup>20°</sup>	350	soluble alcohol.....	crystalline.....
24	–182.5°	4.89 c.c. <sup>0°</sup>	.....	sol. melted Ag.; s. sol. al.	.....
25	–119°	0.88	.....	oil of turp. and cinnamon	.....
26	.....	insoluble	insoluble	sol. conc. a., aqua regia	regular hexag..
27	.....	insoluble	insoluble	soluble HBr.....	brown.....
28	.....	soluble	soluble	soluble HCl.....	red brown pris..
29	.....	insoluble	insoluble	soluble KCN, NH <sub>3</sub> aq..	yellow.....
30	.....	s. soluble	.....	soluble HF.....	brown.....
31	.....	.....	.....	.....	.....
32	.....	insoluble	.....	sol. acids, alk.....	brown.....
33	360°	insoluble	insoluble	insol. al., ether; sol. KI	black.....

† Loses 6H<sub>2</sub>O at 150°–180°.

¶ Decomposes at red heat.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Palladium nitrate....	Pd(NO <sub>3</sub> ) <sub>2</sub> .....	230.58	.....	decomp.
2	oxide sub-.....	Pd <sub>2</sub> O.....	229.00	.....	*
3	“ mon-.....	PdO.....	122.50	.....	O, 820°
4	“ di-.....	PdO <sub>2</sub> .....	138.50	.....	O, 200°
5	sulphate.....	PdSO <sub>4</sub> .2H <sub>2</sub> O.....	238.59	.....	.....
6	sulphide sub-.....	Pd <sub>2</sub> S.....	245.06	7.303 <sup>15°</sup>	red heat
7	“ mono-.....	PdS.....	138.56	.....	oxidizes..
8	“ di-.....	PdS <sub>2</sub> .....	170.62	.....	decomp.
9	Pallados diammo- nium chloride.....	PdCl <sub>2</sub> .2NH <sub>3</sub> .....	211.53	.....	.....
10	hydroxide.....	Pd(OH) <sub>2</sub> .2NH.....	174.64	.....	dec.<100°
11	Perchloric Acid.....	HClO <sub>4</sub> .....	100.46	1.764 <sup>37</sup>	.....
12	“ “.....	HClO <sub>4</sub> .H <sub>2</sub> O.....	118.48	1.7756 <sup>42</sup>	50°
13	“ “.....	HClO <sub>4</sub> .2H <sub>2</sub> O.....	136.49	1.65	−20.6°
14	Periodic Acid.....	HIO <sub>4</sub> .2H <sub>2</sub> O.....	228.01	.....	130°
15	Permanganic Acid...	HMnO <sub>4</sub> .....	120.01	.....	.....
16	Permolybdic Acid...	HMoO <sub>4</sub> .2H <sub>2</sub> O.....	197.04	.....	.....
17	Phosphamic Acid...	PONH <sub>2</sub> .(OH) <sub>2</sub> .....	97.07	.....	decomp.
18	Phosphine.....	PH <sub>3</sub> .....	34.02	1.185 A.	−133.5°
19	“ liquid.....	P <sub>2</sub> H <sub>4</sub> .....	66.03	1.007–1.016	< −10°
20	“ solid.....	(P <sub>4</sub> H <sub>2</sub> ) <sub>3</sub> .....	378.05	.....	burns 200°
21	Phosphonium bromide	PH <sub>4</sub> Br.....	114.99	1.906 A.	30°
22	“ chloride...	PH <sub>4</sub> Cl.....	70.48	.....	26°
23	“ hydroxide...	PH <sub>4</sub> OH.....	52.04	.....	.....
24	“ iodide.....	PH <sub>4</sub> I.....	162.00	.....	.....
25	“ sulphate...	(PH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	166.12	.....	.....
26	Phosphoric Acid hypo-	H <sub>4</sub> P <sub>2</sub> O <sub>6</sub> .....	162.03	.....	55°
27	meta-.....	HPO <sub>3</sub> .....	80.01	.....	†
28	ortho-.....	H <sub>3</sub> PO <sub>4</sub> .....	98.02	1.884 <sup>18.2°</sup>	38.6°
29	pyro-.....	H <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	178.03	.....	61°.....
	Phosphorous Acid				
30	hypo-.....	H <sub>3</sub> PO <sub>2</sub> .....	66.02	1.493 <sup>18.8°</sup>	26.5°
31	ortho-.....	H <sub>3</sub> PO <sub>3</sub> .....	82.02	1.651 <sup>21.2°</sup>	70.1°
32	pyro-.....	H <sub>4</sub> P <sub>2</sub> O <sub>5</sub> .....	146.03	.....	38°
33	Phosphorous yellow..	P <sub>4</sub> .....	124	1.8232 <sup>20°</sup>	44.2°
34	“ red.....	P <sub>4</sub> .....	124	2.11	350° (yel.)
35	bromide tri-.....	PBr <sub>3</sub> .....	270.88	2.8847	−41.5°

\* Decomposes at red heat.

† Sublimes at white heat.

Number.	Boiling Point, C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	soluble	decomp.	soluble $\text{HNO}_3$ .....	brown yel.rhom.
2	.....	insoluble	.....	insoluble acids.....	black.....
3	.....	insoluble	.....	s. soluble acids.....	black.....
4	.....	insoluble	.....	s. soluble acids.....	black.....
5	.....	v. soluble	decomp.	.....	brown crystals.
6	.....	insoluble	.....	insol. acids; sol. aq. regia	gray.....
7	.....	insoluble	.....	soluble $\text{HCl}$ ; insoluble $(\text{NH}_4)_2\text{S}$	black.....
8	.....	insoluble	.....	soluble aqua regia.....	dark brown....
9	.....	.....	.....	.....	.....
10	.....	s. soluble	.....	soluble acids, $\text{NH}_3$ aq...	yel. or red crys.
11	39°	soluble	decomp.	.....	crystalline.....
12	decomp.	soluble.....	.....	.....	oily.....
13	200°	soluble	.....	.....	needles.....
14	734°	v. soluble	.....	soluble alcohol.....	crystalline.....
15	.....	v. soluble	.....	soluble alcohol, ether ..	monoclinic.....
16	.....	v. soluble	decomp.	.....	.....
17	.....	v. soluble	v. soluble	.....	white crystals..
18	-85°	v. soluble	.....	.....	.....
19	57°-58°	insoluble	insoluble	sol. al., ether, $\text{Cu}_2\text{Cl}_2$ ...	.....
20	.....	insoluble	.....	sol. al., turpentine ..	.....
21	.....	insoluble	insoluble	insoluble alcohol.....	yellow.....
22	.....	decomp.	decomp.	.....	regular.....
23	sublimes	decomp.	.....	.....	regular.....
24	80°	.....	.....	.....	crystalline.....
25	.....	decomp.	.....	decomp. by alcohol.....	tetrag. prisms..
26	dec. 70°	decomp.	.....	.....	crystals.....
27	.....	soluble	.....	.....	crystals.....
28	.....	soluble	soluble	.....	glassy.....
29	†	v. soluble	.....	soluble alcohol.....	rhombic.....
30	-10	v. soluble	decomp.	v. soluble.....	needles.....
31	.....	.....	.....	.....	.....
32	.....	∞	∞	.....	tablets.....
33	§	∞	∞	.....	crystalline.....
34	¶	decomp.	.....	.....	needles.....
35	290°	0.00033	s. soluble	1.50°, 1081° benzol; 0.4 al.; 1000 $\text{CS}_2$ ; .430°. 235° ether; sol. alk.	yellow regular .
36	.....	insoluble	insoluble	insol. ether, $\text{CS}_2$ ; sol. alk.	red hexagonal rhombohedral
37	175.3°	decomp.	.....	soluble $\text{CS}_2$ , ether, $\text{CHCl}_3$	.....

† Loses  $\frac{1}{2}$   $\text{H}_2\text{O}$  at 213°.

§ Decomposes at 200°.

¶ Decomposes at 130°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (A).	Melting. Point, °C.
<b>Phosphorus</b>					
1	bromide penta-....	PBr <sub>5</sub> .....	430.80	.....	100°
2	bromofluoride.....	PBr <sub>2</sub> F <sub>3</sub> .....	247.92	.....	− 20°
3	bromonitride.....	PBr <sub>2</sub> N.....	204.96	.....	188°–190°
4	bromotrichloride di	PBr <sub>2</sub> Cl <sub>3</sub> .....	297.27	.....	35°
5	“ octo-	PBr <sub>8</sub> Cl <sub>3</sub> .....	777.03	.....	25°
6	“ tetra-	PBr <sub>4</sub> Cl <sub>3</sub> .....	457.19	.....	.....
7	chloride tri-.....	PCl <sub>3</sub> .....	137.35	1.6128‡	− 111.8°
8	“ penta-.....	PCl <sub>5</sub> .....	208.25	3.60 <sup>296°</sup> D.	148°†
9	chlorofluoride.....	PCl <sub>2</sub> F <sub>3</sub> .....	158.90	.....	− 8°
10	fluoride tri-.....	PF <sub>3</sub> .....	88.00	.....	− 160°
11	“ penta-.....	PF <sub>5</sub> .....	126.00	4.30 D.	− 83°
12	hepta bromide di- chloride	PBr <sub>7</sub> Cl <sub>2</sub> .....	661.62	.....	.....
13	iodide di-.....	P <sub>2</sub> I <sub>4</sub> .....	284.94	.....	110°
14	“ tri-.....	PI <sub>3</sub> .....	411.91	.....	61°
15	iodochloride.....	PI <sub>2</sub> Cl <sub>3</sub> .....	360.29	.....	.....
16	monobromtetra- chloride	PBrCl <sub>4</sub> .....	252.76	.....	.....
17	nitride.....	P <sub>3</sub> N <sub>5</sub> .....	163.20	.....	§
18	oxide tri-.....	P <sub>4</sub> O <sub>6</sub> .....	220.00	2.135 <sup>24</sup>	22.5°
19	“ tetr-.....	P <sub>2</sub> O <sub>4</sub> .....	126.00	2.537 <sup>22.6</sup> <sub>4</sub>	> 100°
20	“ pent-.....	P <sub>2</sub> O <sub>5</sub> .....	142.00	2.387.....	
21	oxybromide.....	POBr <sub>3</sub> .....	286.88	2.822	46°
22	oxybromdichloride	POBr.Cl <sub>2</sub> .....	197.86	2.049‡	13°
23	oxychloride.....	POCl <sub>3</sub> .....	153.35	1.71163‡	− 1.5°
24	oxyfluoride.....	POF <sub>3</sub> .....	104.00	.....	− 68°
25	oxyiodide.....	P <sub>3</sub> O <sub>8</sub> I <sub>6</sub> .....	982.82	.....	140°
26	oxynitride.....	PON.....	61.04	.....	red heat
27	selenide sub-.....	P <sub>4</sub> Se.....	203.20	.....	− 12°
28	“ mono-.....	P <sub>2</sub> Se.....	141.20	.....	.....
29	“ tri-.....	P <sub>2</sub> Se <sub>3</sub> .....	299.60	.....	.....
30	“ penta.....	P <sub>2</sub> Se <sub>5</sub> .....	458.00	.....	.....
31	sulphide sesqui-...	P <sub>4</sub> S <sub>3</sub> .....	220.18	2.00 <sup>11°</sup>	166°
32	“ tri-.....	P <sub>4</sub> S <sub>6</sub> .....	316.36	.....	290°
33	“ di-.....	P <sub>3</sub> S <sub>6</sub> .....	285.36	.....	297°
34	“ penta.....	P <sub>2</sub> S <sub>5</sub> .....	222.30	2.03	275°
35	sulphobromchloride	PSBrCl <sub>2</sub> .....	213.92	2.12‡	− 30°
36	sulphobromide.....	PSBr <sub>3</sub> .....	302.94	2.85 <sup>17°</sup>	36.4°–38°
37	“ .....	PSBr <sub>3</sub> .H <sub>2</sub> O.....	320.96	2.7937 <sup>18°</sup>	35°
38	sulphochloride.....	PSCl <sub>3</sub> .....	169.41	1.634 <sup>22°</sup>	− 35°

\* In vacuo.      † Under pressure.      ‡ Decomposes at 250°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	dec. 100°	decomp.	.....	.....	[rhomboidal citron yellow
2	.....	decomp.	.....	.....	pale yellow....
3	150°*	.....	.....	sol. ether, CS <sub>2</sub> , CHCl <sub>3</sub> ..	.....
4	.....	.....	.....	.....	orange crystals.
5	.....	.....	.....	.....	brown needles..
6	.....	decomp.	.....	.....	dark red cryst..
7	76°	decomp.	decomp.	sol. CS <sub>2</sub> , ether, CHCl <sub>3</sub> ..	.....
8	160°–165°	decomp.	.....	sol. CS <sub>2</sub> , C <sub>6</sub> H <sub>5</sub> COCl.....	yellow rhombic.
9	‡	decomp.	.....	soluble alcohol.....	.....
10	–95°	decomp.	.....	soluble alcohol, alkalies	.....
11	–75°	decomp.	.....	.....	.....
12	.....	decomp.	.....	soluble PCl <sub>3</sub> .....	prismatic.....
13	.....	decomp.	.....	soluble CS <sub>2</sub> .....	orange prisms..
14	decomp.	decomp.	decomp.	soluble CS <sub>2</sub> .....	red prisms.....
15	.....	decomp.	.....	soluble CS <sub>2</sub> .....	red hexagonal .
16	.....	decomp.	.....	.....	yellow crystals.
17	.....	insoluble	s. decomp.	.....	amorphous ....
18	173.1°	soluble	decomp.	sol. CS <sub>2</sub> , ether, CHCl <sub>3</sub> ...	liquid or monocl.
19	180°	soluble	.....	.....	orthorhombic ..
20	.....	v. soluble	.....	soluble conc. H <sub>2</sub> SO <sub>4</sub> ....	amorphous ....
21	195°	decomp.	.....	sol. ether, con. H <sub>2</sub> SO <sub>4</sub> , CS <sub>2</sub>	plates.....
22	137.6°	decomp.	.....	.....	tablets.....
23	107.2°	decomp.	decomp.	decomp.....	tablets.....
24	–40°	decomp.	.....	decomp. by alcohol....	crystalline.....
25	decomp.	soluble	.....	soluble alcohol, ether ..	red crystals....
26	.....	insoluble	.....	insoluble acids, alkalies	amorphous ....
27	burns	decomp.	.....	sol. CS <sub>2</sub> ; insol. al., ether	dark yellow....
28	.....	decomp.	.....	s. sol. CS <sub>2</sub> ; insol.al., ether	red.....
29	.....	.....	decomp.	sol. KOH; insol. CS <sub>2</sub> ...	dark red.....
30	.....	decomp.	.....	sol. CCl <sub>4</sub> ; insol. CS <sub>2</sub> ....	dark red need..
31	380°	insoluble	decomp.	sol. CS <sub>2</sub> , PCl <sub>3</sub> , PSCl <sub>3</sub> ..	yellow rhomb...
32	490°	decomp.	.....	sol. al., ether, alkalies..	yellow crystals.
33	‡337°	.....	.....	s. soluble CS <sub>2</sub> .....	yellow needles .
34	518°–520°	decomp	.....	sol. CS <sub>2</sub> , alkalies.....	yellow crystals.
35	150°	decomp.	.....	.....	yellow.....
36	decomp.	decomp.	.....	sol. CS <sub>2</sub> , ether, PCl <sub>3</sub> , PBr <sub>3</sub>	yellow octah...
37	.....	.....	.....	.....	yellow crystals.
38	125°	decomp.	.....	soluble CS <sub>2</sub> .....	.....

§ Decomp. at red heat.

|| Sublimes at red heat.

¶ At 10½ mm.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Phosphorus</b>					
1	sulphocyanate.....	P(CNS) <sub>3</sub> .....	205.30	1.625 <sup>18°</sup>	< -20°
2	sulphofluoride.....	PSF <sub>3</sub> .....	120.06	.....	.....
3	sulphoxide.....	P <sub>4</sub> S <sub>4</sub> O <sub>6</sub> .....	348.24	.....	102°
4	thioamide.....	PS(NH <sub>2</sub> ) <sub>3</sub> .....	111.23	1.71 <sup>3°</sup>	dec. 200°
5	trioxytetrachloride	P <sub>2</sub> O <sub>3</sub> Cl <sub>4</sub> .....	251.80	1.78 <sup>7°</sup>	.....
6	trisulphotetrabrom- ide	P <sub>2</sub> S <sub>3</sub> Br <sub>4</sub> .....	478.02	2.262 <sup>17°</sup>	.....
7	Phosphotungstic Acid	P <sub>2</sub> O <sub>5</sub> .12WO <sub>3</sub> .42H <sub>2</sub> O..	3682.7	.....	.....
8	Platinic Acid brom-..	H <sub>2</sub> PtBr <sub>6</sub> .9H <sub>2</sub> O.....	838.72	.....	dec. 100°
9	“ “ chlor-..	H <sub>2</sub> PtCl <sub>6</sub> .6H <sub>2</sub> O.....	517.61	2.431	decomp.
10	“ “ iodo-...	H <sub>2</sub> PtI <sub>6</sub> .9H <sub>2</sub> O.....	1120.8	.....	.....
11	Platino-platinic oxide	Pt <sub>3</sub> O <sub>4</sub> .....	648.40	.....	†
12	Platinum.....	Pt.....	194.8	21.48 <sup>17.6°</sup>	1710 1780
13	bromide di-.....	PtBr <sub>2</sub> .....	354.72	.....	dec. 300°
14	“ tetra-.....	PtBr <sub>4</sub> .....	514.64	.....	.....
15	chloride di-.....	PtCl <sub>2</sub> .....	265.70	5.87 <sup>11°</sup>	†
16	“ tetra-.....	PtCl <sub>4</sub> .....	336.60	.....	decomp...
17	“ “ .....	PtCl <sub>4</sub> .5H <sub>2</sub> O.....	426.68	2.43	4H <sub>2</sub> O, 100°
18	cyanide.....	Pt(CN) <sub>2</sub> .....	246.88	.....	.....
19	fluoride.....	PtF <sub>4</sub> .....	270.80	.....	†
20	hydroxide (-ous)...	Pt(OH) <sub>2</sub> .....	228.82	.....	.....
21	“ “ .....	Pt(OH) <sub>2</sub> .2H <sub>2</sub> O.....	264.85	.....	2H <sub>2</sub> O, 100°
22	“ (-ic)....	Pt(OH) <sub>4</sub> .....	262.83	.....	decomp ..
23	iodide di-.....	PtI <sub>2</sub> .....	448.74	.....	†
24	“ tetra-.....	PtI <sub>4</sub> .....	702.68	.....	.....
25	oxide mon-.....	PtO.....	210.8	.....	†
26	“ di-.....	PtO <sub>2</sub> .....	226.8	.....	.....
27	“ “ .....	PtO <sub>2</sub> .H <sub>2</sub> O.....	244.82	.....	H <sub>2</sub> O, 100
28	“ “ .....	PtO <sub>2</sub> .2H <sub>2</sub> O.....	262.83	.....	H <sub>2</sub> O, 100°
29	“ “ .....	PtO <sub>2</sub> .3H <sub>2</sub> O.....	280.85	.....	dec. 300°
30	“ “ .....	PtO <sub>2</sub> .4H <sub>2</sub> O.....	298.87	.....	decomp.
31	sulphide mono-....	PtS.....	226.86	8.897	decomp.
32	“ di-.....	PtS <sub>2</sub> .....	258.92	5.27	decomp.
33	“ sesqui-....	Pt <sub>2</sub> S <sub>3</sub> .....	485.78	5.52	.....
34	sulphate.....	Pt(SO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	458.98	.....	.....
35	Potassium.....	K.....	39.15	0.875 <sup>13°</sup>	62.5°
36	acetate.....	KC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	98.17	.....	.....
37	“ acid.....	KH(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .....	158.21	.....	148°
38	aluminate.....	K <sub>2</sub> Al <sub>2</sub> O <sub>4</sub> .3H <sub>2</sub> O.....	250.55	.....	.....

\* At 7.6 atmosphere.

† Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	265°	decomp.	.....	sol. al., ether, CS <sub>2</sub> , CHCl <sub>3</sub>	.....
2	3.8°*	decomp.	.....	s. sol. ether; insol. CS <sub>2</sub> ..	gas.....
3	295°	decomp.	.....	50, CS <sub>2</sub> .....	tetragonal:....
4	.....	s. soluble <sup>1</sup>	decomp.	.....	yellow amorph..
5	210°–215°	decomp.	.....	.....	.....
6	decomp.	.....	.....	.....	yellow oil.....
7	.....	soluble	.....	soluble alcohol, ether ..	.....
8	.....	v. soluble	v. soluble	v. sol. al., ether, CHCl <sub>3</sub> .	red monoclinic.
9	.....	v. soluble	v. soluble	soluble alcohol, ether...	red brown.....
10	.....	sol. and dec.	.....	.....	brown monocl..
11	.....	insoluble	.....	insoluble acids.....	black.....
12	.....	insoluble	insoluble	sol. aq. r., fused alk....	grayish.....
13	.....	insoluble	insoluble	soluble HBr, KBr .....	brown.....
14	.....	0.41 <sup>20°</sup>	s. soluble	sol. al., ether, HBr.....	dark brown....
15	.....	insoluble	insoluble	soluble HCl, NH <sub>3</sub> aq. ...	brown.....
16	.....	v. soluble	.....	soluble alcohol, ether...	brown.....
17	.....	v. soluble	s. soluble	soluble alcohol, ether...	red monoclinic.
18	.....	insoluble	insoluble	insoluble alkalies.....	yellow-brown ..
19	.....	sol. and dec.	.....	.....	buff crystals...
20	.....	insoluble	insoluble	sol. HCl, HBr, SO <sub>2</sub> aq.alk	black.....
21	.....	insoluble	insoluble	sol. acids, alkalies.....	yellow.....
22	.....	insoluble	insoluble	v. sol. acids, alkalies...	reddish brown .
23	.....	insoluble	insoluble	insol. a.; sol. Na <sub>2</sub> SO <sub>3</sub> ...	black.....
24	.....	insoluble	.....	sol. alk., HI, KI.....	br. black amor..
25	.....	insoluble	.....	sol. H <sub>2</sub> SO <sub>3</sub> , conc. HCl ..	violet to black..
26	.....	insoluble	.....	insoluble acids.....	black.....
27	.....	insoluble	.....	sol. HCl, NaOH; insol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	yellow.....
28	.....	insoluble	.....	.....	brown.....
29	.....	insoluble	insoluble	insol. HCl, aq. r.....	black.....
30	.....	insoluble	insoluble	sol. acids.....	yellow needles .
31	.....	insoluble	.....	insol. a.; sol. (NH <sub>4</sub> ) <sub>2</sub> S ..	black. [needles
32	.....	insoluble	.....	sol. (NH <sub>4</sub> ) <sub>2</sub> S, aqua regia	black or gray
33	.....	insoluble	.....	insol. a.; sol. aqua regia.	steel gray .....
34	.....	soluble	decomp.	sol. a., al., ether.....	yellow plates...
35	757.5°	decomp.	decomp.	sol. a., al., mercury....	.....
36	.....	188 <sup>2°</sup>	492 <sup>62°</sup>	33 alcohol; insol. ether	.....
37	†	decomp.	.....	sol. glac. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	needles plates..
38	.....	v. soluble	.....	insol. al.; sol. alk.....	crystals.....

† Decomposes at 300°–350°.

‡ Decomposes at 200°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Potassium amid....	KH <sub>2</sub> N.....	55.21	.....	271°
2	antimonate.....	KSbO <sub>3</sub> .....	207.35	.....	.....
3	antimonyl tartrate.	KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	332.39	2.6	½H <sub>2</sub> O, 100°
4	arsenate.....	K <sub>3</sub> AsO <sub>4</sub> .....	256.45	.....	.....
5	".....	K <sub>2</sub> HAsO <sub>4</sub> .....	218.31	.....	.....
6	arsenate acid.....	KH <sub>2</sub> AsO <sub>4</sub> .....	180.17	2.851	288°
7	arsenite.....	KAsO <sub>2</sub> .....	146.15	.....	.....
8	" acid.....	KH(AsO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O....	272.17	.....	.....
9	aurate.....	KAuO <sub>2</sub> .3H <sub>2</sub> O.....	322.40	.....	.....
10	auricyanide.....	KAu(CN) <sub>4</sub> .1½H <sub>2</sub> O...	367.53	.....	1½H <sub>2</sub> O
11	aurocyanide.....	KAu(CN) <sub>2</sub> .....	288.43	.....	.....
12	benzoate.....	KC <sub>7</sub> H <sub>5</sub> O <sub>2</sub> .3H <sub>2</sub> O....	214.24	.....	.....
13	borate meta.....	K <sub>2</sub> B <sub>2</sub> O <sub>4</sub> .....	164.30	.....	.....
14	" tetra.....	K <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .5H <sub>2</sub> O.....	324.38	1.74 †	5H <sub>2</sub> O, r. h.
15	borofluoride.....	KBF <sub>4</sub> .....	126.15	2.498 <sup>20°</sup>	.....
16	borotartrate.....	KC <sub>4</sub> H <sub>4</sub> BO <sub>7</sub> .....	214.18	1.832	.....
17	bromate.....	KBrO <sub>3</sub> .....	167.11	3.271 <sup>17.5</sup> <sub>17.5</sub>	434°
18	bromide.....	KBr.....	119.11	2.756 <sup>19</sup>	710°–750°
19	bromoaurate.....	KAuBr <sub>4</sub> .....	556.19	.....	decomp.
20	".....	KAuBr <sub>4</sub> .2H <sub>2</sub> O.....	592.22	.....	.....
21	bromoplatinate....	K <sub>2</sub> PtBr <sub>6</sub> .....	752.86	4.54	.....
22	bromoplatinite....	K <sub>2</sub> PtBr <sub>4</sub> .....	592.94	.....	.....
23	carbonate.....	K <sub>2</sub> CO <sub>3</sub> .....	138.30	2.29	860–898°
24	".....	K <sub>2</sub> CO <sub>3</sub> .2H <sub>2</sub> O.....	174.33	2.043	.....
25	".....	2K <sub>2</sub> CO <sub>3</sub> .3H <sub>2</sub> O.....	330.65	.....	.....
26	" acid.....	KHCO <sub>3</sub> .....	100.16	2.17	
27	chlorate.....	KClO <sub>3</sub> .....	122.60	2.344 <sup>17°</sup>	370°
28	chloride.....	KCl.....	74.60	1.994 <sup>18</sup>	740°–800°
29	chloraureate.....	KAuCl <sub>4</sub> .....	378.15	.....	.....
30	chlorochromate....	KOCrClO <sub>2</sub> .....	174.70	2.497	.....
31	chloroiridate.....	K <sub>2</sub> IrCl <sub>6</sub> .....	484.00	3.546	decomp.
32	chloropalladate....	K <sub>2</sub> PdCl <sub>6</sub> .....	397.50	2.74–2.81	decomp.
33	chloropalladite....	K <sub>2</sub> PdCl <sub>4</sub> .....	326.60	2.738	decomp.
34	chloroplatinate....	K <sub>2</sub> PtCl <sub>6</sub> .....	485.80	3.586	decomp.
35	chloroplatinite....	K <sub>2</sub> PtCl <sub>4</sub> .....	414.90	3.291 <sup>21°</sup>	.....
36	chlororhodite.....	K <sub>3</sub> RhCl <sub>6</sub> .3H <sub>2</sub> O....	487.20	.....	decomp.
37	chlorostannate....	K <sub>2</sub> SnCl <sub>6</sub> .....	410.00	2.687	.....
38	chromate.....	K <sub>2</sub> CrO <sub>4</sub> .....	194.40	2.721 <sup>4°</sup>	940°
39	citrate.....	K <sub>3</sub> C <sub>6</sub> H <sub>5</sub> O <sub>7</sub> .H <sub>2</sub> O....	324.51	1.98	decomp.
40	cobalticyanide.....	K <sub>3</sub> Co(CN) <sub>6</sub> .....	332.69	1.906	.....
41	cobaltinitrite.....	2Co(NO <sub>2</sub> ) <sub>3</sub> .6KNO <sub>2</sub> . 3H <sub>2</sub> O	959.43	.....	dec. 200°

\* Decomposes at 200°.

† Anhydrous.

‡ Sublimes at white heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color,
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	400°	decomp.	.....	decomp. by alcohol....	green.....
2	.....	insoluble	s. soluble	sol. warm KOH.....	crystals.....
3	58°	.....	52 <sup>100°</sup>	insoluble alcohol.....	octahedra....
4	18.87	.....	v. soluble	4 alcohol.....	needles.....
5	soluble	.....	.....	.....	.....
6	196°	.....	v. soluble	insoluble alcohol.....	crystalline....
7	soluble	.....	.....	s. soluble alcohol.....	.....
8	soluble	.....	.....	s. soluble alcohol.....	.....
9	v. soluble	.....	decomp.	soluble alcohol.....	.....
10	*	soluble	v. soluble	soluble alcohol.....	tablets. [hedra
11	14.3	.....	200	s. sol. al.; insol. ether..	rhombic octa-
12	decomp.	.....	.....	.....	.....
13	.....	soluble	v. soluble	.....	monoclinic....
14	.....	v. soluble	v. soluble	.....	hexag. prisms.
15	decomp.	1.42	6.25 <sup>100°</sup>	soluble alk.; insol. al...	hexag. tablets.
16	.....	.....	.....	.....	.....
17	decomp.	3.1 <sup>0°</sup>	50 <sup>100°</sup>	insoluble alcohol.....	rhombohedral.
18	‡	53.48 <sup>0°</sup>	102.04 <sup>100°</sup>	s. sol. alcohol, ether....	regular.....
19	.....	s. soluble	.....	soluble alcohol.....	monoclinic....
20	.....	19.5 <sup>15°</sup>	204 <sup>67°</sup>	sol. KBr; dec. by ether.	.....
21	.....	2.07 <sup>10°</sup>	10 <sup>100°</sup>	.....	red regular...
22	.....	v. soluble	v. soluble	.....	brown rhombic
23	§	89.4 <sup>0°</sup>	156 <sup>100°</sup>	insoluble alcohol.....	.....
24	.....	112.6 <sup>0°</sup>	.....	.....	rhombic.....
25	.....	107.3 <sup>0°</sup>	.....	.....	monoclinic....
26	.....	22.4 <sup>0°</sup>	60 <sup>60°</sup>	insol. al.; sol. K <sub>2</sub> CO <sub>3</sub> aq..	monoclinic....
27	¶	3.3 <sup>0°</sup>	60 <sup>104.8°</sup>	0.833 alcohol; sol. alk..	monoclinic....
28	subl. w. h.	28.5 <sup>0°</sup>	56.6 <sup>100°</sup>	soluble alcohol, alkalies	regular.....
29	.....	27.7 <sup>10°</sup>	80.2 <sup>60°</sup>	soluble alcohol.....	yellow needles
30	.....	sol. and dec.	.....	soluble acids.....	red prisms....
31	.....	s. soluble	6.67	insoluble al., KCl.....	black octahed.
32	.....	s. soluble	decomp.	s. sol. HCl; insol. al....	red regular...
33	.....	soluble	v. soluble	insol.al.; sol.KCl,NH <sub>3</sub> aq.	yellow regular
34	.....	0.74 <sup>0°</sup>	5.18 <sup>100°</sup>	insol. al., ether.....	yellow regular
35	.....	s. soluble	v. soluble	insoluble alcohol.....	red tetrag....
36	.....	s. soluble	decomp.	insoluble alcohol.....	red triclinic...
37	.....	soluble	.....	.....	.....
38	.....	61.5 <sup>0°</sup>	81.8 <sup>106.1°</sup>	insoluble alcohol.....	yellow rhomb.
39	.....	soluble	.....	.....	.....
40	.....	v. soluble	.....	insoluble alcohol.....	yellow rhombic
41	.....	s. soluble	s. soluble	insoluble alcohol, ether.	yel. tetragonal prisms

§ Decomposes at 810°.    ¶ Decomposes at 100°–200°.    ¶ Decomposes at 400°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Potassium</b>					
1	cobaltocyanide . . . .	K <sub>4</sub> Co(CN) <sub>6</sub> . . . . .	371.84	.....	.....
2	cobaltosulphate . . .	K <sub>2</sub> SO <sub>4</sub> .CoSO <sub>4</sub> .6H <sub>2</sub> O .	437.52	2.2122 <sup>29</sup>	.....
3	cyanate . . . . .	KCNO . . . . .	81.19	2.048	fuses
4	cyanide . . . . .	KCN . . . . .	65.19	1.52 <sup>16°</sup>	red heat
5	dichromate . . . . .	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> . . . . .	294.50	2.692 <sup>4°</sup>	400°
6	ferricyanide . . . . .	K <sub>3</sub> Fe(CN) <sub>6</sub> . . . . .	329.59	1.8109 <sup>17°</sup>	decomp.
7	ferric oxalate . . . . .	KFe(C <sub>2</sub> O <sub>4</sub> ) <sub>2</sub> .2½H <sub>2</sub> O .	316.09	.....	decomp.
8	" " . . . . .	K <sub>3</sub> Fe(C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .3H <sub>2</sub> O .	491.40	.....	3H <sub>2</sub> O, 100
9	ferrocyanide . . . . .	K <sub>4</sub> Fe(CN) <sub>6</sub> .3H <sub>2</sub> O . .	422.79	1.8533 <sup>17°</sup>	†
10	fluoride . . . . .	KF . . . . .	58.15	2.454	789°-885°
11	" . . . . .	KF.2H <sub>2</sub> O . . . . .	94.18	2.454	.....
12	" acid . . . . .	KHF <sub>2</sub> . . . . .	78.16	.....	decomp.
13	fluogermanate . . . .	K <sub>2</sub> GeF <sub>4</sub> . . . . .	264.8	.....	.....
14	fluostannate . . . . .	K <sub>2</sub> SnF <sub>6</sub> .H <sub>2</sub> O . . . . .	329.32	3.053	.....
15	fluosilicate . . . . .	K <sub>2</sub> SiF <sub>6</sub> . . . . .	220.70	2.665 <sup>17.5</sup> / <sub>4</sub>	‡
16	fluotitanate . . . . .	K <sub>2</sub> TiF <sub>6</sub> .H <sub>2</sub> O . . . . .	258.42	.....	.....
17	fluozirconate . . . .	K <sub>2</sub> ZrF <sub>6</sub> . . . . .	282.90	3.582	.....
18	formate . . . . .	KCHO <sub>2</sub> . . . . .	84.16	1.908	150°
19	hydride . . . . .	KH . . . . .	79.31	0.80	decomp.
20	hydrosulphide . . . .	KSH . . . . .	72.22	.....	decomp.
21	hydroxide . . . . .	KOH . . . . .	56.16	2.044	red heat
22	hypochlorite . . . . .	KClO . . . . .	90.60	.....	decomp.
23	hypophosphite . . . .	KH <sub>2</sub> PO <sub>2</sub> . . . . .	104.17	.....	burns . . .
24	iodate . . . . .	KIO <sub>3</sub> . . . . .	214.12	3.975 <sup>18°</sup>	560°
25	" acid . . . . .	KH(IO <sub>3</sub> ) <sub>2</sub> . . . . .	390.10	.....	.....
26	iodide . . . . .	KI . . . . .	166.12	3.043 <sup>24.3°</sup>	614°-723°
27	" tri- . . . . .	KI <sub>3</sub> . . . . .	420.06	3.498 <sup>15°</sup>	45°
28	iodobromide . . . . .	KBr.IBr . . . . .	326.04	.....	decomp.
29	iodochloride . . . . .	KCl.ICl <sub>3</sub> . . . . .	307.92	1.176 <sup>45°</sup>	decomp.
30	iodoiridite . . . . .	K <sub>3</sub> IrI <sub>6</sub> . . . . .	1072.3	.....	.....
31	magnesium chloride (carnallite)	MgCl <sub>2</sub> .KCl.6H <sub>2</sub> O . . .	277.96	1.618	.....
32	manganate . . . . .	K <sub>2</sub> MnO <sub>4</sub> . . . . .	197.30	.....	dec. 190°
33	molybdate . . . . .	K <sub>2</sub> MoO <sub>4</sub> . . . . .	238.30	.....	.....
34	nickel sulphate . . . .	K <sub>2</sub> SO <sub>4</sub> .NiSO <sub>4</sub> .6H <sub>2</sub> O .	437.22	2.124	.....
35	nitrate . . . . .	KNO <sub>3</sub> . . . . .	101.19	2.1 <sup>4°</sup>	336°-353°
36	nitride . . . . .	K <sub>3</sub> N . . . . .	131.49	.....	.....
37	nitrite . . . . .	KNO <sub>2</sub> . . . . .	85.19	.....	.....
38	nitroprusside . . . . .	K <sub>2</sub> Fe(CN) <sub>5</sub> .NO.2H <sub>2</sub> O	330.47	.....	.....
39	osmate . . . . .	K <sub>2</sub> OsO <sub>4</sub> .2H <sub>2</sub> O . . . .	369.33	.....	.....

\* Decomposes at 230°.                      ‡ Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	soluble	.....	insoluble alcohol, ether.	amethyst need.
2	.....	25.4°	.....	108.44°	monoclinic pl...
3	.....	soluble	.....	insoluble alcohol.....	laminæ .....
4	red heat	v. soluble	122.2103.3°	s. soluble alcohol.....	octahedra[clinic
5	decomp.	4.9°	102100°	insoluble alcohol.....	red tri. or mono-
6	.....	334.5°	77.5100°	s. soluble alcohol.....	red monoclinic.
7	.....	9221°	decomp.	.....	olive br. cryst..
8*	.....	4.7°	117.7100°	insoluble alcohol.....	.....
9	.....	27.812.2°	90.696.3°	insoluble alcohol.....	yellow monocl..
10	.....	v. soluble	v. soluble	insol. alcohol; sol. HF..	.....
11	.....	v. soluble	v. soluble	insol. alcohol; sol. HF..	regular.....
12	.....	v. soluble	.....	insol. al.; sol. $\text{KC}_2\text{H}_3\text{O}_2$	regular.....
13	.....	6.4518°	43.5100°	.....	.....
14	.....	3.718°	33.3100°	.....	octahedra.....
15	.....	0.1217.5°	0.955100°	insol. al.; sol. HCl.....	hexagonal.....
16	.....	0.556°	1.2820°	sol. HCl.....	.....
17	.....	0.782°	25100°	.....	rhombic.....
18	decomp.	soluble.....	.....	.....	rhombic.....
19	.....	decomp.	decomp.	insol. benzine, ether, $\text{CS}_2$	crystalline.....
20	.....	soluble	soluble	v. soluble alcohol.....	yel. rhombohed.
21	subl. w. h.	10715°	v. soluble	v. soluble alcohol, ether	rhombh. ( $2\text{H}_2\text{O}$ )
22	.....	v. soluble	v. soluble	.....	.....
23	.....	v. soluble	.....	sol. al.; insol. ether....	hexagonal.....
24	.....	4.74°	32.3100°	insol. al.; sol. KI.....	regular...[clinic
25	.....	1.3315°	.....	.....	rhomb. or mono-
26	.....	126.1°	205.6100.7°	14.28 al.; sol. ether....	regular.....
27	.....	v. soluble	.....	sol. alcohol, KI.....	dark blue need..
28	.....	.....	.....	.....	.....
29	.....	decomp.	.....	decomp. by ether.....	yellow rhombic.
30	.....	v. soluble	.....	insoluble alcohol.....	green crystals..
31	.....	64.518.75°	decomp.	decomp. by alcohol....	hexagonal.....
32	.....	decomp.	.....	sol. KOH.....	dark gr. rhomb.
33	.....	v. soluble	.....	insoluble alcohol.....	.....
34	.....	7.0°	60.875°	.....	blue monoclinic
35	decomp.	13.3°	247100°	insoluble alcohol, ether.	† .....
36	.....	decomp.	.....	.....	dark gray ....
37	.....	soluble	.....	insol. alcohol.....	prismatic.....
38	.....	10016°	.....	soluble alcohol.....	red monoclinic.
39	.....	s. soluble	soluble	insoluble alcohol, ether.	violet octahedra

† Loses  $3\text{H}_2\text{O}$  at 60°–80°.

‡ Rhombohedral or prismatic.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Potassium osmocyani- ide	$K_4Os(CN)_6 \cdot 3H_2O$ . . .	557.89	.....	.....
2	oxalate.....	$K_2C_2O_4 \cdot H_2O$ .....	184.32	2.08	decomp.
3	“ acid.....	$KHC_2O_4 \cdot \frac{1}{2}H_2O$ .....	137.17	2.088†	decomp.
4	“ tetr-.....	$KH_3(C_2O_4)_2 \cdot 2H_2O$ . . .	254.21	1.836	decomp.
5	oxide.....	$K_2O$ .....	94.30	2.656	red heat
6	“ per-.....	$K_2O_4$ .....	142.30	.....	red heat
7	perchlorate.....	$KClO_4$ .....	138.60	$2.524^{\frac{10.8}{4}}$	610°
8	perchromate.....	$K_3CrO_8$ .....	297.55	.....	dec. 170°
9	periodate.....	$KIO_4$ .....	230.12	.....	582°
10	permanganate.....	$KMnO_4$ .....	158.15	$2.7032^{\frac{9.9}{4}}$	dec. 240°
11	persulphate.....	$K_2S_2O_8$ .....	270.42	.....	dec. < 100°
12	per-ruthenate.....	$KRuO_4$ .....	204.85	.....	dec. 440°
13	peruramate.....	$K_2UO_5 \cdot 3H_2O$ .....	450.85	.....	dec. 100°
14	phosphate ortho-..	$K_3PO_4$ .....	212.45	.....	.....
15	“ hydrogen .	$K_2HPO_4$ .....	174.31	.....	decomp.
16	“ dihydrogen	$KH_2PO_4$ .....	136.17	$2.338^{\frac{1}{2}}$	96°
17	“ pyro-.....	$K_4P_2O_7 \cdot 3H_2O$ .....	384.65	2.33	3H <sub>2</sub> O, 300
18	“ meta- . . . .	$K_4P_4O_{12} \cdot 2H_2O$ .....	472.60	$2.264^{14.5^\circ}$	2H <sub>2</sub> O, 100
19	phosphite.....	$K_2HPO_3$ .....	158.31	.....	decomp.
20	platinate.....	$K_2PtO_3 \cdot 3H_2O$ .....	375.15	.....	.....
21	platinocyanide....	$K_2Pt(CN)_4 \cdot 3H_2O$ . . .	431.31	$2.4548^{16^\circ}$	.....
22	platinonitrite.....	$K_2Pt(NO_2)_4$ .....	457.26	.....	.....
23	plumbate.....	$K_2PbO_3 \cdot 3H_2O$ .....	387.25	.....	.....
24	ruthenate.....	$K_2RuO_4 \cdot H_2O$ .....	262.02	.....	H <sub>2</sub> O, 200°
25	selenate.....	$K_2SeO_4$ .....	221.50	$3.066^{\frac{1}{2}}$	.....
26	silicate.....	$K_2SiO_3$ .....	154.70	.....	.....
27	“ tetra-.....	$K_2Si_4O_9$ .....	335.90	.....	.....
28	silver cyanide.....	$KAg(CN)_2$ .....	199.16	.....	.....
29	sodium carbonate .	$KNaCO_3 \cdot 6H_2O$ .....	230.30	1.61	6H <sub>2</sub> O, 100°
30	stannate.....	$K_2SnO_3 \cdot 3H_2O$ .....	299.35	3.197	.....
31	sulphate.....	$K_2SO_4$ .....	174.36	$2.6633^{\frac{1}{2}}$	1045–1074
32	“ acid.....	$KHSO_4$ .....	136.22	2.245	200°
33	“ “.....	$KHSO_4$ .....	136.22	2.612	.....
34	“ pyro-.....	$K_2S_2O_7$ .....	254.42	2.27	> 300°
35	sulphide mono-....	$K_2S$ .....	110.36	2.13	.....
36	“ “.....	$K_2S \cdot 5H_2O$ .....	200.44	.....	3H <sub>2</sub> O, 150°
37	“ di-.....	$K_2S_2$ .....	142.42	.....	.....
38	“ tri-.....	$K_2S_3$ .....	174.48	.....	.....
39	“ tetra-.....	$K_2S_4$ .....	206.54	.....	dec. 850°
40	“ penta-.....	$K_2S_5$ .....	238.60	.....	.....

\* Decomposes at 411°.                      † Density of the anhydrous salt.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (Al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	s. soluble	soluble	insoluble alcohol, ether.	yellowish plates
2	.....	33 <sup>16°</sup>	.....	.....	monoclinic.....
3	.....	2.2 <sup>20°</sup>	51.5 <sup>100°</sup>	.....	trimetric.....
4	.....	1.8 <sup>13°</sup>	.....	.....	triclinic.....
5	.....	v. soluble	v. soluble	soluble alcohol, ether..	gray.....
6	decomp.	decomp.	.....	decomp. by alcohol....	yellow leaflets..
7	*	0.7 <sup>70°</sup>	19.8 <sup>100°</sup>	s. sol. al.; insol. al., ether	rhombic.....
8	.....	s. soluble	.....	insol. al., ether.....	brown octahed.
9	O, 300°	0.35	soluble	s. soluble KOH.....	rhombic.....
10	.....	2.95 <sup>50°</sup>	16.75 <sup>50°</sup>	sol. conc. H <sub>2</sub> SO <sub>4</sub> .....	dark red rhomb.
11	.....	0.564 <sup>40°</sup>	4.08 <sup>40°</sup>	insoluble alcohol.....	prismatic.....
12	.....	s. soluble	.....	.....	black quadratic.
13	.....	decomp.	decomp.	decomp. HCl.....	red crystals....
14	.....	s. soluble	soluble	insoluble alcohol.....	rhombic.....
15	.....	v. soluble	v. soluble	v. soluble alcohol.....	.....
16	H <sub>2</sub> O, 400°	v. soluble	.....	insoluble alcohol.....	tetragonal.....
17	.....	soluble	v. soluble	insoluble alcohol.....	.....
18	.....	s. soluble	.....	soluble acids.....	amorphous.....
19	.....	v. soluble	.....	insoluble alcohol.....	.....
20	.....	soluble	.....	insoluble alcohol.....	yel. rhombohed.
21	.....	s. soluble	v. soluble	soluble alcohol, ether..	yellow rhombic.
22	.....	3.8 <sup>15°</sup>	soluble	.....	monocl. prisms.
23	.....	decomp.	decomp.	soluble KOH.....	rhombohedral..
24	.....	v. soluble	.....	.....	black rhombic..
25	.....	110.5 <sup>50°</sup>	122.2 <sup>100°</sup>	.....	.....
26	.....	soluble	.....	insoluble alcohol.....	.....
27	.....	soluble	soluble	insoluble alcohol.....	amorphous.....
28	.....	25 <sup>20°</sup>	100	4, alcohol.....	regular.....
29	.....	13 <sup>12°</sup>	20 <sup>15°</sup>	.....	monoclinic.....
30	.....	106.6 <sup>10°</sup>	110.5 <sup>20°</sup>	insol. al.; s. sol. KOH..	rhombohedral..
31	.....	8.5 <sup>50°</sup>	26.2 <sup>100°</sup>	insoluble alcohol.....	rhomb. or hexag.
32	decomp.	36.3 <sup>30°</sup>	121.6 <sup>100°</sup>	decomp. by alcohol....	monoclinic.....
33	.....	.....	.....	.....	rhombic.....
34	.....	soluble	decomp.	.....	.....
35	.....	soluble	v. soluble	sol. al., glyc.; insol. ether	brown crystals.
36	.....	soluble	.....	sol. al., glyc.; insol. ether	orthorhombic..
37	.....	soluble	decomp.	soluble alcohol.....	yellowish red..
38	.....	soluble	decomp.	soluble alcohol.....	yellowish brown
39	.....	soluble	.....	soluble alcohol.....	red brown
40	.....	v. soluble	v. soluble	v. soluble alcohol.....	[crystals

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Potassium sulphite ..	K <sub>2</sub> SO <sub>3</sub> .2H <sub>2</sub> O .....	194.39	.....	decomp.
2	“ acid .....	KHSO <sub>3</sub> .....	120.22	.....	decomp.
3	sulphocyanate ....	KCNS .....	97.25	1.906	161.2°
4	tartrate .....	K <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O .....	235.34	1.975	.....
5	“ acid .....	KH, C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	188.19	1.956	.....
6	tellurate .....	K <sub>2</sub> TeO <sub>4</sub> .5H <sub>2</sub> O .....	359.98	.....	.....
7	tellurite .....	K <sub>2</sub> TeO <sub>3</sub> .....	253.90	.....	red heat
8	thioantimonate ....	2K <sub>3</sub> SbS <sub>4</sub> .9H <sub>2</sub> O .....	893.92	.....	.....
9	thioarsenate .....	K <sub>3</sub> AsS <sub>4</sub> .....	320.69	.....	decomp.
10	thioarsenite .....	K <sub>3</sub> AsS <sub>3</sub> .....	288.63	.....	decomp.
11	thiocarbonate .....	K <sub>2</sub> CS <sub>3</sub> .....	186.48	.....	.....
12	thionate di- .....	K <sub>2</sub> S <sub>2</sub> O <sub>6</sub> .....	238.42	2.278 <sup>29</sup>	decomp.
13	“ tri- .....	K <sub>2</sub> S <sub>3</sub> O <sub>6</sub> .....	270.48	2.304 <sup>29</sup>	.....
14	“ tetra- .....	K <sub>2</sub> S <sub>4</sub> O <sub>6</sub> .....	302.54	2.2963 <sup>29</sup>	.....
15	“ penta- .....	2K <sub>2</sub> S <sub>5</sub> O <sub>6</sub> .3H <sub>2</sub> O .....	723.25	2.1123 <sup>29</sup>	decomp.
16	thioplattinate .....	K <sub>2</sub> Pt <sub>4</sub> S <sub>6</sub> .....	1049.9	6.44 <sup>150</sup>	burns
17	thiostannate .....	K <sub>2</sub> SnS <sub>3</sub> .10H <sub>2</sub> O .....	473.64	.....	10H <sub>2</sub> O, 100°
18	thiosulphate .....	3K <sub>2</sub> S <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O .....	589.28	*2.590	H <sub>2</sub> O, 180°
19	tungstate ortho- ..	K <sub>2</sub> WO <sub>4</sub> .2H <sub>2</sub> O .....	362.33	.....	red heat
20	“ meta- .....	K <sub>2</sub> W <sub>4</sub> O <sub>13</sub> .8H <sub>2</sub> O .....	1166.4	.....	.....
21	“ para- .....	K <sub>6</sub> W <sub>7</sub> O <sub>24</sub> .6H <sub>2</sub> O .....	2015.0	.....	decomp.
22	uranate .....	K <sub>2</sub> UO <sub>4</sub> .....	380.80	.....	.....
23	xanthogenate .....	KS <sub>2</sub> COC <sub>2</sub> H <sub>5</sub> .....	160.31	1.5576 <sup>21.50</sup>	dec. > 200
24	Praseodymium .....	Pr .....	140.5	6.4754	940°
25	carbide .....	PrC <sub>2</sub> .....	164.5	5.10	decomp.
26	chloride .....	PrCl <sub>3</sub> .....	246.85	4.017 <sup>2</sup>	818°
27	“ .....	PrCl <sub>3</sub> .7H <sub>2</sub> O .....	372.96	2.251 <sup>16.20</sup>	.....
28	oxalate .....	Pr <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .10H <sub>2</sub> O .....	725.16	.....	.....
29	potassium sulphate	Pr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .3K <sub>2</sub> SO <sub>4</sub> . H <sub>2</sub> O	1146.3	3.275 <sup>160</sup>	.....
30	sulphide .....	Pr <sub>2</sub> S <sub>3</sub> .....	377.18	5.042 <sup>110</sup>	decomp.
31	Radium .....	Ra .....	225	.....	.....
32	bromide .....	RaBr <sub>2</sub> .....	384.92	.....	.....
33	chloride .....	RaCl <sub>2</sub> .....	295.5	.....	1650°
34	Rhodium .....	Rh .....	103.0	12.1	2000°
35	chloride .....	RhCl <sub>3</sub> .....	209.35	.....	†
36	“ .....	RhCl <sub>3</sub> .4H <sub>2</sub> O .....	281.41	.....	.....
37	hydrosulphide .....	Rh(SH) <sub>3</sub> .....	202.20	.....	.....
38	hydroxide tetra- ...	Rh(OH) <sub>4</sub> .....	171.03	.....	.....
39	“ sesqui- ..	Rh(OH) <sub>3</sub> .....	154.02	.....	decomp.

\* Anhydrous.

† Decomposes at 450° to 500°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	100	v. soluble	s. soluble alcohol.....	monoclinic.....
2	.....	soluble	soluble	insoluble alcohol.....	needles.....
3	.....	177.20°	217 <sup>20°</sup>	soluble alcohol, acetone	prisms.....
4	.....	133 <sup>2°</sup>	158 <sup>23°</sup>	s. soluble alcohol.....	monoclinic.....
5	.....	0.37°	6.1 <sup>100°</sup>	insol. al., H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ; sol. a., alk.	rhombic.....
6	.....	s. soluble	soluble	insol. al.; s. sol. KOH..	rhomb. prisms .
7	.....	s. soluble	soluble	.....	.....
8	.....	soluble	.....	insoluble alcohol.....	yellow crystals.
9	.....	v. soluble	.....	insoluble alcohol.....	crystalline.....
10	.....	soluble	.....	insoluble alcohol.....	.....
11	.....	v. soluble	.....	s. soluble alcohol.....	red br. crystals.
12	.....	6	66 <sup>100°</sup>	insoluble alcohol.....	hexagonal.....
13	.....	v. soluble	decomp.	insoluble alcohol.....	rhombic needles
14	.....	v. soluble	.....	insoluble alcohol.....	hexag. prisms..
15	.....	50	decomp.	insoluble alcohol.....	rhombic plates.
16	.....	insoluble	.....	decomp. by HCl.....	blue gray crys..
17	.....	soluble	.....	insoluble alcohol.....	dark brown oil.
18	decomp.	v. soluble	v. soluble	insoluble alcohol.....	monoclinic.....
19	.....	51.5	151.5	insoluble alcohol.....	triclinic needles
20	.....	soluble	v. soluble	.....	octahedra.....
21	.....	2.15	6.6	insoluble alcohol.....	rhombic[rhomb.
22	.....	insoluble	insoluble	v. soluble acids.....	orange yellow
23	200°	v. soluble	.....	20 alcohol; insol. ether	prisms.....
24	.....	decomp.	.....	.....	yellow.....
25	.....	decomp.	decomp.	sol. dil. a., conc. H <sub>2</sub> SO <sub>4</sub>	yellow crystals.
26	.....	v. soluble	v. soluble	soluble alcohol.....	green.....
27	.....	.....	.....	soluble HCl.....	.....
28	.....	insoluble	.....	sol. conc. acids.....	crystalline.....
29	.....	s. soluble	.....	sol. HNO <sub>3</sub> , HCl.....	crystalline.....
30	.....	insoluble	decomp.	soluble dil. acids.....	brown.....
31	.....	.....	.....	.....	.....
32	.....	soluble	soluble	soluble alcohol.....	.....
33	.....	.....	.....	.....	yellowish reg...
34	.....	insoluble	insoluble	s. sol. a., aqua regia....	grayish white .
35	.....	insoluble	.....	insoluble acids.....	red.....
36	.....	v. soluble	.....	sol. al., HCl; insol. ether	dark red.....
37	.....	insoluble	decomp.	insol. a., Na <sub>2</sub> S; sol. aq. r.	brownish black.
38	.....	insoluble	.....	soluble HCl.....	green.....
39	.....	insoluble	.....	soluble acids, KOH....	black gelatinous

Number.	Name.	Formula.	Molec- ular. Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Rhodium nitrate....	Rh(NO <sub>3</sub> ) <sub>3</sub> .2H <sub>2</sub> O.....	325.15	.....	.....
2	oxide mon-.....	RhO.....	119.00	.....	.....
3	“ sesqui-.....	Rh <sub>2</sub> O <sub>3</sub> .....	254.00	.....	.....
4	“ di-.....	RhO <sub>2</sub> .....	135.00	.....	.....
5	sulphate.....	Rh <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .12H <sub>2</sub> O...	710.37	.....	.....
6	sulphide mono-.....	RhS.....	135.06	.....	decomp.
7	“ sesqui-.....	Rh <sub>2</sub> S <sub>3</sub> .....	302.18	.....	.....
8	sulphite.....	Rh <sub>2</sub> (SO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O....	554.28	.....	.....
9	Rubidium.....	Rb.....	85.5	1.522 <sup>15°</sup>	38.5°
10	bromide.....	RbBr.....	165.46	3.210 <sup>23°</sup>	683°
11	carbonate.....	Rb <sub>2</sub> CO <sub>3</sub> .....	231.00	.....	837°
12	chlorate.....	RbClO <sub>3</sub> .....	168.95	.....	.....
13	chloride.....	RbCl.....	120.95	2.706 <sup>23°</sup>	710°
14	chloroplatinate.....	Rb <sub>2</sub> PtCl <sub>6</sub> .....	578.50	3.94 <sup>17.5°</sup>	.....
15	chromate.....	Rb <sub>2</sub> CrO <sub>4</sub> .....	287.10	.....	.....
16	dichromate.....	Rb <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	387.20	.....	.....
17	fluoride.....	RbF.....	104.50	3.202 <sup>16.5°</sup>	753°
18	fluosilicate.....	Rb <sub>2</sub> SiF <sub>6</sub> .....	313.40	3.338 <sup>20°</sup>	.....
19	hydride.....	RbH.....	86.51	2	decomp.
20	hydroxide.....	RbOH.....	102.51	.....	> red heat
21	iodide.....	RbI.....	212.47	3.428 <sup>24°</sup>	642°
22	nitrate.....	RbNO <sub>3</sub> .....	147.54	3.131 <sup>15°</sup>	.....
23	penta sulphide.....	Rb <sub>2</sub> S <sub>5</sub> .....	160.30	2.618 <sup>15°</sup>	223°–224°
24	perchlorate.....	RbClO <sub>4</sub> .....	184.95	.....	fusible
25	permanganate.....	RbMnO <sub>4</sub> .....	204.50	3.235 <sup>10.4°</sup>	.....
26	sulphate.....	Rb <sub>2</sub> SO <sub>4</sub> .....	267.06	3.6113	.....
27	sulphide.....	Rb <sub>2</sub> S.4H <sub>2</sub> O.....	275.12	.....	.....
28	tartrate acid.....	RbHC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	234.54	2.399	decomp.
29	Ruthenium.....	Ru.....	101.7	8.6	> 1950°
30	“.....	Ru.....	101.7	11.4	2000°+
31	“.....	Ru.....	101.7	12.26 <sup>3</sup>	2000°+
32	chloride di-.....	RuCl <sub>2</sub> .....	172.60	.....	.....
33	“ tri-.....	RuCl <sub>3</sub> .....	208.05	.....	.....
34	“ tetra-.....	RuCl <sub>4</sub> .....	243.50	.....	.....
35	hydroxide (sesqui).....	Ru(OH) <sub>3</sub> .....	192.82	.....	.....
36	oxide sesqui-.....	Ru <sub>2</sub> O <sub>3</sub> .....	331.60	.....	.....
37	“ di-.....	RuO <sub>2</sub> .....	173.80	7.2	.....
38	“ penta-.....	Ru <sub>2</sub> O <sub>5</sub> .....	363.60	.....	10, 360°
39	“ non-.....	Ru <sub>4</sub> O <sub>9</sub> .....	711.20	.....	0, 440°

\* Decomposes at 740°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		soluble	soluble	insoluble alcohol.....	red.....
2		insoluble	insoluble	insoluble acids.....	gray.....
3		insoluble	insoluble	insol. acids, KOH.....	gray crystals..
4		insoluble	insoluble	insol. acids, KOH.....	brown.....
5		v. soluble	decomp.	insoluble alcohol.....	pale yel. cryst.
6		insoluble	insoluble	insol. acids, aqua regia.	bluish.....
7		insoluble	insoluble	insoluble.....	black tablets..
8		soluble		insoluble alcohol.....	yellow crystals
9	696°	decomp.	decomp.	soluble acids, alcohol...	soft white....
10		985°	104.816°		regular.....
11	*	soluble	soluble	soluble alcohol.....	
12		2.847°	5.119°		trimetric.....
13		76.381°	82.897°	soluble alcohol.....	regular.....
14		0.1840°	0.634100°	insoluble alcohol.....	yellow regular.
15		620°	95.760°		yellow rhombic
16		soluble			tricl.or monocl.
17		soluble		insoluble al., ether.....	
18		0.1620°	1.35100°	insoluble alcohol; sol. a.	regular.....
19		decomp.	decomp.	decomp. acids.....	prismatic need.
20		19830°	v. soluble	soluble alcohol.....	gray.....
21		137.56.9°	15217.4°		reg. octahed.
22		20.1°	43.510°	v. soluble HNO <sub>3</sub> .....	reg. or hexag. prisms
23		decomp.		soluble alcohol.....	red rhombic..
24	decomp.	1.0921.3°		insoluble alcohol.....	rhombic.....
25		0.460°	4.6860°		crystalline....
26		26.58°	44.37100°		hexagonal....
27		v. soluble	v. soluble		crystals.....
28		1.1825°	11.7100°		trimet. prisms.
29		insoluble	insoluble	s. sol. a., aqua regia....	black porous..
30		insoluble	insoluble		melted.....
31		insoluble	insoluble		grayish cryst..
32		insoluble		insol. acids, alkalies....	black cryst....
33		soluble	decomp.	s. sol. al.; insol. a., CS <sub>2</sub> .	brown cryst...
34		soluble		soluble alcohol.....	
35				sol. a. NH <sub>3</sub> aq. ; insol. NaOH	black powder .
36		insoluble		insoluble acids.....	blue black....
37		insoluble		insol. a.; sol. fused KOH	dark violet reg.
38				soluble HCl.....	black cryst....
39					black cryst....

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
	<b>Ruthenium</b>				
1	oxide tetr-.....	RuO <sub>4</sub> .....	165.70	5.7	50°
2	silicide.....	RuSi.....	130.1	5.40 <sup>40</sup>	.....
3	<b>Samarium</b> .....	Sm.....	150.3	7.7-7.8	.....
4	bromide.....	SmBr <sub>3</sub> .6H <sub>2</sub> O.....	498.28	2.97 <sup>220</sup>	.....
5	carbide.....	SmC <sub>2</sub> .....	174.3	5.86	.....
6	chloride.....	SmCl <sub>3</sub> .....	208.05	4.465 <sup>18</sup>	686°
7	“.....	SmCl <sub>3</sub> .3H <sub>2</sub> O.....	310.70	2.392 <sup>150</sup>	.....
8	fluoride.....	SmF <sub>3</sub> . $\frac{1}{2}$ H <sub>2</sub> O.....	216.31	.....	.....
9	hydroxide.....	Sm <sub>2</sub> (OH) <sub>6</sub> .....	402.65	.....	.....
10	nitrate.....	Sm(NO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O.....	444.52	2.375	.....
11	oxide.....	Sm <sub>2</sub> O <sub>3</sub> .....	348.60	8.347	.....
12	peroxide.....	Sm <sub>4</sub> O <sub>9</sub> .....	745.20	.....	.....
13	sulphate.....	Sm <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .8H <sub>2</sub> O.....	732.91	2.930	8H <sub>2</sub> O, 450
14	<b>Scandium</b> .....	Sc.....	44.1	.....	.....
15	oxide.....	Sc <sub>2</sub> O <sub>3</sub> .....	136.2	3.864	.....
16	sulphate.....	Sc <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	376.38	2.579	.....
17	<b>Selenium</b> .....	Se <sub>8</sub> .....	633.6	4.26-4.28 <sup>250</sup>	softens 50°
18	“.....	Se <sub>8</sub> .....	633.6	4.47 <sup>250</sup>	170°-180°
19	“.....	Se <sub>8</sub> .....	633.6	4.8 <sup>250</sup>	217°
20	bromide mono-....	Se <sub>2</sub> Br <sub>2</sub> .....	318.32	3.604 <sup>150</sup>	.....
21	“ tetra-....	SeBr <sub>4</sub> .....	399.04	.....	dec. 75°
22	bromochloride tri-	SeBr <sub>3</sub> Cl.....	354.53	.....	decomp.
23	bromtrichloride....	SeBrCl <sub>3</sub> .....	265.51	.....	dec. 190°
24	chloride mono-....	SeCl <sub>2</sub> .....	229.30	2.906 <sup>17.50</sup>	.....
25	“ tetra-....	SeCl <sub>4</sub> .....	221.00	.....	sublimes
26	iodide mono-....	Se <sub>2</sub> I <sub>2</sub> .....	412.34	.....	68°-70°
27	“ tetra-....	SeI <sub>4</sub> .....	587.08	.....	75°-80°
28	oxide di-.....	SeO <sub>2</sub> .....	111.20	3.9518 $\frac{15.8}{15.8}$	†
29	oxychloride.....	SeOCl <sub>2</sub> .....	166.10	2.44	10°
30	nitride.....	Se <sub>2</sub> N <sub>2</sub> .....	186.48	.....	exp. 200°
31	sulphide.....	SeS.....	111.26	3.056 <sup>00</sup>	decomp.
32	sulphoxide.....	SeSO <sub>3</sub> .....	159.26	.....	dec. 40°
33	sulphoxytetra-.... chloride	SeSO <sub>3</sub> Cl <sub>4</sub> .....	301.06	.....	165°
34	<b>Selenic acid</b> .....	H <sub>2</sub> SeO <sub>4</sub> .....	145.22	2.9508 <sup>150</sup>	58°
35	“ “.....	H <sub>2</sub> SeO <sub>4</sub> .H <sub>2</sub> O.....	163.24	2.6273 <sup>150</sup>	25°
36	<b>Selenious acid</b> ....	H <sub>2</sub> SeO <sub>3</sub> .....	129.22	3.0066 <sup>15.70</sup>	decomp.
37	<b>Silicic acid meta</b> -....	H <sub>2</sub> SiO <sub>3</sub> .....	78.42	1.813 <sup>170</sup>	.....
38	“ “ ortho-....	H <sub>4</sub> SiO <sub>4</sub> .....	96.43	1.576 <sup>1700</sup>	.....
39	<b>Silicobromoform</b> ....	SiHBr <sub>3</sub> .....	269.29	2.7	> -60°

\* Decomposes at 106°. † Loses 3SO<sub>2</sub> at 1050°.

Number.	Boiling Point, °C.	Solubility 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1 *		s. soluble	.....	soluble alkalies.....	yellow rhombic.
2		insoluble	insoluble.	soluble $\text{HNO}_3 + \text{HF}$ ....	metallic prisms.
3		.....	.....	.....	.....
4		deliques.	.....	.....	.....
5		decomp.	decomp.	soluble acids.....	yellow hexag....
6		.....	.....	.....	green yel. cryst.
7		deliques.	.....	.....	green.....
8		insoluble	.....	insoluble acids.....	.....
9		insoluble	.....	sol. a.; insol. alkalies...	.....
10		v. soluble	.....	.....	pale yel. prisms
11		.....	.....	v. soluble in acids.....	.....
12		insoluble	.....	.....	.....
13 †		s. soluble	.....	.....	.....
14		.....	.....	.....	.....
15		insoluble	.....	soluble hot conc. acids.	white powder..
16		.....	.....	.....	.....
17 690°		insoluble	insoluble	sol. $\text{CS}_2$ , conc. $\text{H}_2\text{SO}_4$ ...	red powder....
18 690°		insoluble	insoluble	sol. $\text{CS}_2$ , conc. $\text{H}_2\text{SO}_4$ ...	red monoclinic.
19 690°		insoluble	insoluble	insol. $\text{CS}_2$ ; sol. conc. $\text{H}_2\text{SO}_4$	steel-gray hex..
20 225°–230°		insoluble	decomp.	sol. $\text{CS}_2$ , $\text{CHCl}_3$ , Et. Br.	bright red liquid
21		decomp.	.....	sol. $\text{CS}_2$ , $\text{CHCl}_3$ , Et. Br.	orange crystals.
22		.....	.....	s. soluble $\text{CS}_2$ .....	orange crystals.
23		.....	.....	insoluble $\text{CS}_2$ .....	yel.-brown crys.
24 145°		decomposes	.....	v. sol. $\text{CS}_2$ , $\text{CHCl}_3$ , $\text{CCl}_4$ .	red liquid.....
25		decomposes	.....	s. sol. $\text{CS}_2$ ; Sol. $\text{POCl}_3$ ..	yel. crystalline.
26 †		decomp.	decomp.	.....	steel gray cryst.
27 $\text{I}_4$ , 100°		decomp.	decomp.	.....[tone	dark gray cryst.
28		38.4 <sup>14</sup> °	v. soluble	v. sol. al., $\text{HC}_2\text{H}_3\text{O}_2$ , ace-	tetrag. needles.
29 179.5°		decomp.	.....	.....	yellowish liquid.
30		insoluble	insoluble	insol. al.; s. sol. $\text{CS}_2$ ....	orange yellow..
31		insoluble	insoluble	sol. $\text{CS}_2$ ; insol. ether...	or. yel. tablets..
32		decomposes	.....	sol. conc. $\text{H}_2\text{SO}_4$ .....	green prisms...
33 183°		decomposes	.....	.....	white needles..
34 260°		v. soluble	.....	sol. conc. $\text{H}_2\text{SO}_4$ ; dec. al.	hexag. prisms..
35		v. soluble	.....	.....	needles.....
36		v. soluble	v. soluble	v. soluble alcohol.....	crystals.....
37		insoluble	.....	sol. alk.; insol. $\text{NH}_4\text{Cl}$ ..	amorphous....
38		s. soluble	.....	sol. alk.; insol. $\text{NH}_4\text{Cl}$ ..	amorphous....
39 109°–110°		decomposes	.....	.....	.....

† Decomposes at 100°.

‡ Sublimes at 250° to 280°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Silicochloroform . . . .	SiHCl <sub>3</sub> . . . . .	135.76	1.65	− 1.34°
2	Silicofluoform . . . . .	SiHF <sub>3</sub> . . . . .	86.41	2.98° D	− 110°
3	Silicoiodoform . . . . .	SiHI <sub>3</sub> . . . . .	410.32	3.314 <sup>20°</sup>	.....
4	Silicon cryst. . . . .	Si . . . . .	28.4	2.49 <sup>10°</sup>	1200°
5	graphitic . . . . .	Si . . . . .	28.4	2.00–2.50	.....
6	amorphous . . . . .	Si . . . . .	28.4	2.00	.....
7	boride tri- . . . . .	SiB <sub>3</sub> . . . . .	61.4	2.52	.....
8	“ hexa- . . . . .	SiB <sub>6</sub> . . . . .	94.4	2.47	.....
9	bromide tri- . . . . .	SiBr <sub>3</sub> . . . . .	268.28	.....	.....
10	“ tetra- . . . . .	SiBr <sub>4</sub> . . . . .	348.24	2.8128°	5°
11	bromotrichloride . . . .	SiBrCl <sub>3</sub> . . . . .	214.71	.....	.....
12	dibromdichloride . . . .	SiBr <sub>2</sub> Cl <sub>2</sub> . . . . .	259.22	.....	> − 60°
13	tribromchloride . . . . .	SiBr <sub>3</sub> Cl . . . . .	303.73	2.432	> − 39°
14	carbide . . . . .	SiC . . . . .	40.40	3.12 <sup>15°</sup>	.....
15	chloride tri- . . . . .	SiCl <sub>3</sub> . . . . .	134.75	1.58°	− 1°
16	“ tetra- . . . . .	SiCl <sub>4</sub> . . . . .	170.20	1.524 <sup>‡</sup>	− 89°
17	chlorohydrosulphide . . .	SiCl <sub>3</sub> SH . . . . .	167.82	1.45	.....
18	fluoride . . . . .	SiF <sub>4</sub> . . . . .	104.40	3.57 A.	− 77°
19	hydride . . . . .	SiH <sub>4</sub> . . . . .	32.43	.....	.....
20	“ . . . . .	Si <sub>2</sub> H <sub>6</sub> . . . . .	62.85	2.37 D.	− 138°
21	iodide di- . . . . .	SiI <sub>2</sub> . . . . .	282.34	.....	.....
22	“ hexa- . . . . .	Si <sub>2</sub> I <sub>6</sub> . . . . .	818.62	.....	250°(vac.)
23	“ tetra- . . . . .	SiI <sub>4</sub> . . . . .	536.28	18.56 A.	120.5°
24	iodotrichloride . . . . .	SiICl <sub>3</sub> . . . . .	261.72	.....	.....
25	oxide di-amorph. . . . .	SiO <sub>2</sub> . . . . .	60.40	2.20 <sup>15.6°</sup>	white heat
26	“ “ cryst. . . . .	SiO <sub>2</sub> . . . . .	60.40	2.65	“ “
27	oxychloride . . . . .	Si <sub>2</sub> OCl <sub>6</sub> . . . . .	301.50	10.05 D	.....
28	sulphide . . . . .	SiS <sub>2</sub> . . . . .	92.52	.....	.....
29	sulphobromide . . . . .	SiSBr <sub>2</sub> . . . . .	220.38	.....	93°
30	sulphochloride . . . . .	SiSCl <sub>2</sub> . . . . .	70.90	.....	75°
31	Silver . . . . .	Ag . . . . .	107.93	10.53	961.5°
32	“ . . . . .	Ag . . . . .	107.93	.....	955° in air
33	acetate . . . . .	AgC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> . . . . .	166.95	3.259	decomp.
34	arsenate . . . . .	Ag <sub>3</sub> AsO <sub>4</sub> . . . . .	462.79	.....	fusible
35	arsenite . . . . .	Ag <sub>3</sub> AsO <sub>3</sub> . . . . .	446.79	.....	decomp.
36	bromate . . . . .	AgBrO <sub>3</sub> . . . . .	235.89	5.206	decomp.

\* At 181 cm.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	34°	decomposes	.....	sol. CS <sub>2</sub> , CHCl <sub>3</sub> , CCl <sub>4</sub> ...	.....
2	— 80.2°	decomposes	.....	dec. alk., al., ether; sol. toluol.	.....
3	220°	decomposes	.....	sol. CS <sub>2</sub> .....	liquid.....
4	3500°	insoluble	insoluble	insol. HF; sol. HNO <sub>3</sub> + HF	gray octahed..
5	3500°	insoluble	insoluble	insol. HF; sol. HNO <sub>3</sub> + HF, fused KOH.....	crystalline....
6	3500°	insoluble	insoluble	sol. HF, KOH.....	brown amorph.
7	.....	insoluble	.....	{ s. sol. hot conc. H <sub>2</sub> SO <sub>4</sub> ,	black rhombic
8	.....	insoluble	.....	{ conc. HNO <sub>3</sub>	black crystals.
9	240°	decomposes	.....	decomp. by KOH.....	rhombic.....
10	153°	decomposes	decomp.	decomp. by H <sub>2</sub> SO <sub>4</sub> .....	.....
11	80°	decomposes	.....	.....	.....
12	103°–105°	decomposes	.....	.....	.....
13	126°–128°	decomposes	.....	.....	.....
14	.....	insoluble	insoluble	insoluble acids.....	rhombic plates
15	144°–148°	decomposes	decomposes	decomp. by alkalies.....	leaflets.....
16	59.6°	decomposes	.....	decomp. by alcohol.....	yellow.....
17	96°	decomposes	.....	decomp. by alcohol.....	.....
18	— 65° *	decomposes	.....	sol. al., ether, HNO <sub>3</sub> ...	gas.....
19	— 115.5°	insoluble	.....	decomp. by KOH.....	.....
20	52°	decomposes	.....	.....	liquid.....
21	.....	decomposes	.....	insol., CS <sub>2</sub> , CHCl <sub>3</sub> , C <sub>6</sub> H <sub>6</sub> .....	.....
22	decomp.	decomposes	decomposes	19, CS <sub>2</sub> .....	hexag. plates.
23	290°	decomposes	.....	220, CS <sub>2</sub> .....	reg. octahedra.
24	113°–114°	decomposes	.....	.....	.....
25	.....	insoluble	.....	sol. hot. alk., HF.....	amorphous...
26	.....	insoluble	.....	insol. alk.; sol. HF.....	hexag. prisms.
27	136°–139°	decomposes	.....	sol. CS <sub>2</sub> , CHCl <sub>3</sub> , CCl <sub>4</sub> , ether.....	.....
28	white heat	decomposes	.....	sol. dil. alk.; dec. by al..	needles.....
29	150°	decomposes	decomposes	soluble CS <sub>2</sub> .....	plates.....
30	92° †	decomposes	decomposes	soluble CS <sub>2</sub> .....	prisms.....
31	2050°	insoluble	insoluble	{ sol. HNO <sub>3</sub> , hot conc.	.....
32	2050°	.....	.....	{ H <sub>2</sub> SO <sub>4</sub> ; insol. alk.	.....
33	.....	1.0214°	soluble	.....	laminæ.....
34	.....	insoluble	.....	sol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> , NH <sub>3</sub> aq. NH <sub>4</sub> salts	dark red.....
35	.....	insoluble	insoluble	sol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> , NH <sub>3</sub> aq. NH <sub>4</sub> salts	yellow.....
36	.....	0.15820°	.....	sol. NH <sub>3</sub> aq.; s. sol. HNO <sub>3</sub>	tetragonal....

† At 22.5 mm.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Silver bromide.....	AgBr.....	187.89	6.473 <sup>2</sup>	427°
2	carbonate.....	Ag <sub>2</sub> CO <sub>3</sub> .....	275.86	6.017.5°	dec. 200°
3	chlorate.....	AgClO <sub>3</sub> .....	191.38	4.401 <sup>23</sup>	230°
4	chloride.....	AgCl.....	143.38	5.561	451°–460°
5	chromate.....	Ag <sub>2</sub> CrO <sub>4</sub> .....	331.96	5.523	.....
6	citrate.....	AgC <sub>6</sub> H <sub>5</sub> O <sub>7</sub> .....	296.97	.....	decomp.
7	cyanate.....	AgCNO.....	149.97	4.0	decomp.
8	cyanide.....	AgCN.....	133.97	3.95	decomp.
9	dichromate.....	Ag <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	432.06	.....	decomp.
10	ferricyanide.....	Ag <sub>3</sub> FeCy <sub>6</sub> .....	535.93	.....	.....
11	ferrocyanide.....	Ag <sub>4</sub> FeCy <sub>6</sub> .H <sub>2</sub> O.....	661.88	.....	.....
12	fluoride.....	AgF.....	126.93	5.852 <sup>15.5</sup>	435°
13	fluosilicate.....	Ag <sub>2</sub> SiF <sub>6</sub> .2H <sub>2</sub> O.....	394.29	.....	<100°
14	iodate.....	AgIO <sub>3</sub> .....	282.90	5.4–5.65	decomp.
15	iodide.....	AgI.....	234.90	5.675 <sup>2</sup>	526°–556°
16	nitrate.....	AgNO <sub>3</sub> .....	169.97	4.352 <sup>19</sup>	218°
17	nitrite.....	AgNO <sub>2</sub> .....	153.97	.....	.....
18	nitroprusside.....	Ag <sub>2</sub> Fe(CN) <sub>5</sub> NO.....	672.00	.....	.....
19	oxalate.....	Ag <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .....	303.86	5.029 <sup>4</sup>	decomp.
20	oxide.....	Ag <sub>2</sub> O.....	231.86	7.521	0,300–340
21	oxide per-.....	AgO.....	123.93	5.474	dec.>100°
22	perchlorate.....	AgClO <sub>4</sub> .....	207.38	.....	486°
23	permanganate.....	AgMnO <sub>4</sub> .....	225.93	.....	decomp.
24	phosphate ortho-..	Ag <sub>3</sub> PO <sub>4</sub> .....	418.79	7.321	849°
25	“ pyro-...	Ag <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	605.72	5.306 <sup>7.5</sup>	585°
26	potassium cyanide.	KAg(CN) <sub>2</sub> .....	199.16	.....	.....
27	selenide.....	Ag <sub>2</sub> Se.....	295.06	8.0	red heat
28	sulphate.....	Ag <sub>2</sub> SO <sub>4</sub> .....	311.92	5.40	654°–676°
29	sulphide.....	Ag <sub>2</sub> S.....	247.92	6.85–7.32	oxidizes
30	sulphite.....	Ag <sub>2</sub> SO <sub>3</sub> .....	295.92	.....	dec. 100°

\* Decomposes at 700°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1 *		0.0000085 <sup>20°</sup>	.....	.051 <sup>100°</sup> NH <sub>3</sub> aq.; sol. KCN	pale yel. octah.
2		0.0031 <sup>15°</sup>	0.05 <sup>100°</sup>	sol. NH <sub>3</sub> aq., Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ; insol. alcohol	.....
3 †		10 <sup>15°</sup>	50 <sup>80°-90°</sup>	insol. alcohol.....[KCN	tetrag. or reg...
4		0.000152 <sup>20°</sup>	.....	sol. conc. HCl., NH <sub>3</sub> aq.,	regular.....
5		0.0028 <sup>18°</sup>	.....	sol. a., NH <sub>3</sub> aq., KCN ..	dark red cryst..
6		0.028 <sup>18°</sup>	0.0284 <sup>25°</sup>	sol. NH <sub>3</sub> aq., KCN.....	needles.....
7		s. soluble	soluble	sol. HNO <sub>3</sub> , NH <sub>3</sub> aq., KCN	.....
8		0.000021 <sup>25°</sup>	insoluble	sol. NH <sub>3</sub> aq., KCN, HNO <sub>3</sub>	white curdy....
9		0.0083 <sup>15°</sup>	decomp.	v. sol. HNO <sub>3</sub> , NH <sub>3</sub> aq., KCN	red triclinic....
10		insoluble	.....	sol. NH <sub>3</sub> aq., hot (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub>	orange yellow..
11		insoluble	.....	sol. KCN, NH <sub>3</sub> aq.; insol. a.	yellowish white.
12		182 <sup>15.5°</sup>	.....	.....	yellow tetrag...
13	decomp.	v. soluble	.....	.....	crystals.....
14		0.0044 <sup>20°</sup>	s. soluble	sol. HNO <sub>3</sub> , NH <sub>3</sub> aq., KI	monoclinic.....
15		0.000035 <sup>21°</sup>	.....	sol. KCN, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , NaCl	yellow hexag .. or regular.
16	decomp.	122 <sup>0°</sup>	940 <sup>100°</sup>	66 al., ether, glycerine .	rh'b. or hexag. rhombohed.
17		0.33	soluble	insoluble alcohol.....	crystals.....
18		insoluble	.....	insol. al., HNO <sub>3</sub> ; sol. NH <sub>3</sub> aq.	flesh colored...
19		0.0073 <sup>20°</sup>	.....	sol. NH <sub>3</sub> aq., KCN.....	white.....
20		0.0043 <sup>20°</sup>	.....	sol. NH <sub>3</sub> aq., KCN, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> [NH <sub>3</sub> aq.	brown powder.
21		insoluble	.....	sol. conc. H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> ,	black octahed..
22		soluble	.....	.....	.....
23		0.55 <sup>0°</sup>	1.69 <sup>28.5°</sup>	.....	monoclinic.....
24		0.00193 <sup>20°</sup>	.....	sol. acids, NH <sub>3</sub> aq., KCN	yellow.....
25		insoluble	insoluble	sol. NH <sub>3</sub> aq., HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , KCN	.....
26		25 <sup>20°</sup>	v. soluble..	4 alcohol; insol. acids..	reg. octahedra.
27		insoluble	.....	sol. conc. hot HNO <sub>3</sub> , NH <sub>3</sub> aq.	gray.....
28	decomp.	0.58	1.45 <sup>100°</sup>	sol. H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> , NH <sub>3</sub> aq.; insol. al.	rhombic.....
29		insoluble	.....	sol. conc. H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub>	gray black reg. or triclinic
30		s. soluble	.....	sol. NH <sub>3</sub> aq.; insol. HNO <sub>3</sub>	crystals.....

† Decomposes at 270°

Number.	Name.	Formula.	Molecu- lar Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Silver sulphocyanate.	AgCNS.....	166.03	.....	.....
2	tartrate.....	Ag <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	363.89	3.4321	decomp.
3	telluride.....	Ag <sub>2</sub> Te.....	343.46	8.318	.....
4	trinitride.....	AgN <sub>3</sub> .....	150.05	.....	250°
5	tungstate.....	Ag <sub>2</sub> WO <sub>4</sub> .....	463.86	.....	< redness
6	Sodium.....	Na.....	23.05	0.9735 <sup>13.5°</sup>	97.6°
7	acetate.....	NaC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .3H <sub>2</sub> O....	136.12	1.4	58°
8	aluminate.....	Na <sub>2</sub> Al <sub>2</sub> O <sub>4</sub> .....	164.3	.....	.....
9	amide.....[phate	NaNH <sub>2</sub> .....	40.11	.....	155°
10	ammonium phos-	NaNH <sub>4</sub> HPO <sub>4</sub> .4H <sub>2</sub> O .	209.19	1.554	decomp.
11	antimonate.....	2NaSbO <sub>3</sub> .7H <sub>2</sub> O.....	508.61	.....	.....
12	“ pyro-..	Na <sub>2</sub> H <sub>2</sub> Sb <sub>2</sub> O <sub>7</sub> .H <sub>2</sub> O....	418.53	.....	.....
13	arsenate.....	Na <sub>3</sub> AsO <sub>4</sub> .12H <sub>2</sub> O....	424.34	1.7593	85.5°
14	“ acid.....	Na <sub>2</sub> HAsO <sub>4</sub> .7H <sub>2</sub> O....	312.22	.....	57°
15	“ acid.....	Na <sub>2</sub> HAsO <sub>4</sub> .12H <sub>2</sub> O...	402.30	1.67–1.76	28°
16	arsenite.....	Na <sub>2</sub> HAsO <sub>3</sub> .....	170.11	1.87	.....
17	aurosulphide.....	NaAuS.4H <sub>2</sub> O.....	324.37	.....	.....
18	borate tetra-.....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	202.10	2.367	878°
19	“ “ .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .5H <sub>2</sub> O.....	292.18	1.815	.....
20	“ “ borax.	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O....	382.26	1.694 <sup>17°</sup>	red heat
21	“ meta-.....	Na <sub>2</sub> B <sub>2</sub> O <sub>4</sub> .4H <sub>2</sub> O.....	204.16	.....	57°
22	bromate.....	NaBrO <sub>3</sub> .....	151.01	3.339 <sup>17.5</sup> <sub>17.5</sub>	381°
23	bromide.....	NaBr.....	103.01	2.95–3.08	757.7°
24	“ .....	NaBr.2H <sub>2</sub> O.....	139.04	2.176 <sup>3°</sup>	.....
25	bromplatinate.....	Na <sub>2</sub> PtBr <sub>6</sub> .6H <sub>2</sub> O....	828.76	3.323	decomp.
26	carbide.....	Na <sub>2</sub> C <sub>2</sub> .....	70.10	1.575 <sup>15°</sup>	.....
27	carbonate.....	Na <sub>2</sub> CO <sub>3</sub> .....	106.10	2.43–2.51	849°
28	“ .....	Na <sub>2</sub> CO <sub>3</sub> .10H <sub>2</sub> O....	286.26	1.446 <sup>17°</sup>	† 34°
29	“ acid....	NaHCO <sub>3</sub> .....	84.06	2.19–2.22	†
30	“ sesqui-..	Na <sub>4</sub> H <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub> .3H <sub>2</sub> O..	328.26	2.112	decomp.
31	chlorate.....	NaClO <sub>3</sub> .....	106.50	2.490 <sup>15°</sup>	248°–302°
32	chloraurate.....	NaAuCl <sub>4</sub> .2H <sub>2</sub> O....	398.08	.....	.....
33	chloride.....	NaCl.....	58.50	2.1741 <sup>3°</sup>	780°–820°
34	chlororhodate.....	Na <sub>3</sub> RhCl <sub>6</sub> .....	384.85	.....	.....
35	chloriridate.....	Na <sub>2</sub> IrCl <sub>6</sub> .6H <sub>2</sub> O....	559.90	.....	.....
36	chloroplatinate.....	Na <sub>2</sub> PtCl <sub>6</sub> .6H <sub>2</sub> O....	561.70	2.499	6H <sub>2</sub> O, 100
37	chromate.....	Na <sub>2</sub> CrO <sub>4</sub> .10H <sub>2</sub> O....	342.36	2.71 <sup>16°</sup>	23°
38	cyanide.....	NaCN.....	49.09	.....	.....
39	dichromate.....	Na <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .2H <sub>2</sub> O....	298.33	2.52 <sup>16°</sup>	§
40	dithionate.....	Na <sub>2</sub> S <sub>2</sub> O <sub>6</sub> .2H <sub>2</sub> O....	242.25	2.175 <sup>11°</sup>	.....

\* Loses 7H<sub>2</sub>O above 120°. † Loses 5H<sub>2</sub>O at 12.5°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	.000021 <sup>25°</sup>	.....	insol. dil. a.; sol. NH <sub>3</sub> aq	curdy.....
2	.....	0.21 <sup>8°</sup>	0.203 <sup>25°</sup>	soluble NH <sub>3</sub> aq., KCN..	scales.....
3	.....	insoluble	.....	sol. warm HNO <sub>3</sub> , KCN.	gray octahedra.
4	explodes	insoluble	.01 <sup>100°</sup>	sol. dil. HNO <sub>3</sub> , conc. a..	prisms.....
5	.....	.05 <sup>15°</sup>	.....	sol. HNO <sub>3</sub> , NH <sub>3</sub> aq., KCN	pale yel. cryst..
6	877.5°	decomp.	decomp.	insol. benzol., kero.;	.....
7	123°	26 <sup>6°</sup>	200	sol. al. 2.1 <sup>18°</sup> ....[sol a.	monocl. prisms.
8	.....	soluble	v. soluble	insoluble alcohol.....	amorphous....
9	400°	decomposes	decomposes	.....	olive green....
10	.....	16.7	100	insoluble alcohol.....	monoclinic....
11	.....	.031 <sup>12.3°</sup>	.....	s. sol. al., NH <sub>4</sub> salts....	octahedra....
12	.....	s. soluble	s. soluble	s. soluble alcohol.....	.....
13	.....	26.7 <sup>17°</sup>	.....	.....	.....
14	*	61 <sup>15°</sup>	v. soluble	s. sol. alcohol.....	crystalline....
15	.....	17.2 <sup>0°</sup>	140.7 <sup>30°</sup>	insoluble alcohol.....	mono. or rhom..
16	.....	v. soluble	s. soluble	.....	.....
17	.....	soluble	.....	soluble alcohol.....	monoclinic....
18	.....	soluble	soluble	insoluble alcohol.....	.....
19	.....	soluble	soluble	.....	octahedral....
20	.....	2.83 <sup>0°</sup>	201.4 <sup>100°</sup>	insol. a.; sol. glycerine..	monoclinic....
21	.....	soluble	v. soluble	.....	monoclinic....
22	.....	27.54 <sup>0°</sup>	909 <sup>100°</sup>	insol. alcohol.....	††
23	.....	77.5 <sup>0°</sup>	114.9 <sup>100°</sup>	s. soluble alcohol.....	regular.....
24	.....	102.5 <sup>0°</sup>	152.9 <sup>100°</sup>	.....	.....
25	.....	v. soluble	.....	v. soluble alcohol.....	dark red triclin.
26	700°	decomp.	decomp.	sol. acids; decomp. al...	powder.....
27	decomp.	7.1 <sup>0°</sup>	45.4 <sup>100°</sup>	insoluble alcohol.....	.....
28	106°	21.33 <sup>0°</sup>	1142 <sup>38°</sup>	insoluble alcohol.....	monoclinic....
29	.....	6.90 <sup>0°</sup>	16.40 <sup>60°</sup>	insoluble alcohol.....	monoclinic....
30	.....	12.63 <sup>0°</sup>	41.59 <sup>100°</sup>	.....	monoclinic....
31	decomp.	81.9 <sup>0°</sup>	333 <sup>120°</sup>	soluble alcohol.....	reg. tetrahedral
32	.....	150 <sup>10°</sup>	990 <sup>60°</sup>	v. sol. absolute al.....	....[hexag.rhb.
33	white heat	35.7 <sup>0°</sup>	39 <sup>100°</sup>	insol.conc. HCl.; s.sol.al	regular.....
34	.....	.....	.....	.....	.....
35	.....	v. soluble	v. soluble	soluble alcohol.....	red triclinic...
36	.....	v. soluble	v. soluble	sol.al., Cl <sub>2</sub> aq.; insol. ether	red triclinic...
37	.....	v. soluble	v. soluble	s. soluble alcohol.....	yellow trich....
38	.....	soluble	v. soluble	s. soluble alcohol.....	.....
39	†	107.2 <sup>0°</sup>	162.8 <sup>100°</sup>	.....	red triclinic...
40	.....	47.6 <sup>16°</sup>	90.9 <sup>100°</sup>	insol. alcohol, conc. HCl	rhombic.....

‡ Loses CO<sub>2</sub> at 270°.      § Loses 2H<sub>2</sub>O at 100°.      ¶ Decomp. at 400°.

†† Regular tetrahedral, hexagonal rhombohedral or rhombic.

Number	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Sodium ferricyanide..	Na <sub>3</sub> Fe(CN) <sub>6</sub> .H <sub>2</sub> O....	299.31	.....	.....
2	ferric oxalate.....	Na <sub>3</sub> Fe(C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .5½H <sub>2</sub> O	488.14	1.9731 <sup>17.5°</sup>	4H <sub>2</sub> O, 100
3	ferrite.....	Na <sub>2</sub> Fe <sub>2</sub> O <sub>4</sub> .....	221.90	.....	.....
4	ferrocyanide.....	Na <sub>4</sub> Fe(CN) <sub>6</sub> .12H <sub>2</sub> O .	520.53	1.458	.....
5	fluoride.....	NaF.....	42.05	2.766	980°
6	fluosilicate.....	Na <sub>2</sub> SiF <sub>6</sub> .....	188.50	2.755 <sup>17.5°</sup>	†
7	formate.....	NaCHO <sub>2</sub> .....	68.06	1.919	decomp.
8	hydride.....	NaH.....	24.06	0.92.....	decomp.
9	hydrosulphide.....	NaSH.2H <sub>2</sub> O.....	92.15	.....	decomp.
10	hydroxide.....	NaOH.....	40.06	2.13	1098°
11	hypochlorite.....	NaOCl.....	74.50	.....	decomp.
12	hypophosphate.....	Na <sub>4</sub> P <sub>2</sub> O <sub>6</sub> .10H <sub>2</sub> O ....	430.36	1.832	.....
13	“ acid	Na <sub>2</sub> H <sub>2</sub> P <sub>2</sub> O <sub>6</sub> .6H <sub>2</sub> O ...	314.21	1.840	decomp.
14	hypophosphite....	NaH <sub>2</sub> PO <sub>2</sub> .H <sub>2</sub> O.....	106.08	.....	.....
15	hyposulphite.....	NaHSO <sub>2</sub> .....	88.12	.....	.....
16	iodate.....	NaIO <sub>3</sub> .....	198.02	4.277	decomp.
17	iodide.....	NaI.....	150.02	3.654 <sup>18.2°</sup>	603°–695°
18	“ .....	NaI.2H <sub>2</sub> O.....	186.05	2.448	.....
19	lactate.....	NaC <sub>3</sub> H <sub>5</sub> O <sub>3</sub> .....	112.09	.....	decomp.
20	manganate.....	Na <sub>2</sub> MnO <sub>4</sub> .10H <sub>2</sub> O ....	345.26	.....	.....
21	molybdate.....	Na <sub>2</sub> MoO <sub>4</sub> .2H <sub>2</sub> O.....	242.13	.....	.....
22	“ di-.....	Na <sub>2</sub> Mo <sub>2</sub> O <sub>7</sub> .....	350.10	.....	red heat
23	“ tri-.....	Na <sub>2</sub> Mo <sub>3</sub> O <sub>10</sub> .7H <sub>2</sub> O....	620.21	.....	.....
24	“ tetra- ..	Na <sub>2</sub> Mo <sub>4</sub> O <sub>13</sub> .6H <sub>2</sub> O....	746.20	.....	< red heat
25	“ octo-....	Na <sub>2</sub> Mo <sub>8</sub> O <sub>25</sub> .4H <sub>2</sub> O....	1286.2	.....	.....
26	“ deka- ..	Na <sub>2</sub> Mo <sub>10</sub> O <sub>31</sub> .12H <sub>2</sub> O ..	1718.3	.....	.....
27	nitrate.....	NaNO <sub>3</sub> .....	85.09	2.267 <sup>2°</sup>	308°–319°
28	nitride.....	Na <sub>3</sub> N.....	83.19	.....	.....
29	nitrite.....	NaNO <sub>2</sub> .....	69.09	.....	213°
30	nitroprusside.....	Na <sub>2</sub> Fe(CN) <sub>5</sub> NO.2H <sub>2</sub> O	298.27	1.6803 <sup>17°</sup>	.....
31	oxalate.....	Na <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .....	134.10	.....	.....
32	“ acid.....	NaHC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O.....	130.07	.....	.....
33	oxide.....	Na <sub>2</sub> O.....	62.10	2.805	red heat
34	paratungstate.....	Na <sub>6</sub> W <sub>7</sub> O <sub>24</sub> .16H <sub>2</sub> O ...	2098.6	.....	16H <sub>2</sub> O, 300
35	perborate.....	NaBO <sub>3</sub> .H <sub>2</sub> O.....	100.07	.....	dec. 40°
36	“ .....	NaBO <sub>3</sub> .4H <sub>2</sub> O.....	154.11	.....	.....
37	perborax.....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O ....	382.26	.....	.....
38	perchlorate.....	NaClO <sub>4</sub> .....	122.50	.....	482°
39	perchromate.....	Na <sub>3</sub> CrO <sub>8</sub> .....	249.25	.....	dec. 115°
40	permanganate.....	NaMnO <sub>4</sub> .3H <sub>2</sub> O.....	196.10	.....	decomp.
41	peroxide.....	Na <sub>2</sub> O <sub>2</sub> .....	78.10	2.805	decomp.

\* Loses 5½ H<sub>2</sub>O at 200°.                      † Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		18.9	80 <sup>100°</sup>	insoluble alcohol.....	red.....
2*		32.5 <sup>0°</sup>	182 <sup>100°</sup>	.....	green crystals.
3		decomposes	.....	v. soluble dil. HCl.....	.....
4		22 <sup>15.5°</sup>	.....	insoluble alcohol.....	yellow monocl.
5		4 <sup>15°</sup>	.....	s. soluble alcohol.....	reg.... [hexag.
6		0.65 <sup>17.5°</sup>	2.46 <sup>100°</sup>	insoluble alcohol.....	gelatinous or
7		soluble	soluble	s. sol. al.; insol. ether...	rhombic.....
8		decomposes	decomp.	insol. CS <sub>2</sub> , CCl <sub>4</sub> , benzine;	silvery needles.
9		soluble	soluble	soluble alcohol [sol. Na	needles.....
10	white heat	133.3 <sup>18°</sup>	250 <sup>80°</sup>	v. sol. al., ether, glyc...	.....
11		soluble	decomposes	.....	.....
12		33	v. soluble	.....	.....
13		2.2	20	insoluble alcohol.....	.....
14		soluble	soluble	v. soluble alcohol.....	mono. prisms .
15		v. soluble	.....	soluble alcohol.....	.....
16		2.52 <sup>20°</sup>	33.9 <sup>100°</sup>	insol. al.; sol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .	.....
17		158.7 <sup>0°</sup>	312.5 <sup>100°</sup>	v. soluble alcohol.....	regular.....
18		194.0 <sup>0°</sup>	396 <sup>100°</sup>	.....	.....
19		v. soluble	.....	sol. al.; insol. ether...	amorphous ...
20		soluble	decomposes	.....	green monocl.
21		v. soluble	.....	.....	tablets.....
22		s. soluble	s. soluble	.....	needles.....
23		3.878 <sup>20°</sup>	13.7 <sup>100°</sup>	.....	needles.....
24		s. soluble	v. soluble	.....	.....
25		insoluble	insoluble	.....	powder.....
26		s. soluble	s. soluble	.....	crystalline....
27	decomp.	72.9 <sup>0°</sup>	180 <sup>100°</sup>	s. sol. alcohol, glycerene	rhombohedral.
28		.....	.....	.....	dark gray....
29		83.3 <sup>20°</sup>	v. soluble	0.31 <sup>19.5°</sup> et. al., 4.43 <sup>19.5°</sup>	crystalline....
30		40 <sup>15°</sup>	.....	..... [methyl al.	red triclinic...
31		3 <sup>15°</sup>	.....	.....	.....
32		1.7 <sup>15°</sup>	.....	.....	monoclinic....
33	sublimes	decomposes	decomposes	decomposes alcohol...	grayish.....
34		8	decomposes	.....	triclinic.....
35		2.55 <sup>15°</sup>	3.78 <sup>32°</sup>	soluble glycerine.....	.....
36		s. soluble	decomp.	soluble acids.....	crystals.....
37		4.2 <sup>11°</sup>	13.8 <sup>32°</sup>	.....	crystals.....
38	decomp.	soluble	v. soluble	soluble alcohol.....	rhombohedral.
39		s. soluble	.....	insol. alcohol, ether....	orange plates .
40		v. soluble	v. soluble	.....	dark red cryst.
41		soluble	decomposes	soluble dilute acids...	yellow.....

Number.	Name.	Formula.	Molec- ular. Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Sodium perruthenate	NaRuO <sub>4</sub> .H <sub>2</sub> O.....	206.77	.....	.....
2	peruranate.....	Na <sub>2</sub> UO <sub>5</sub> .5H <sub>2</sub> O.....	454.68	.....	dec. 100°
3	phosphate (trisod.)	Na <sub>3</sub> PO <sub>4</sub> .12H <sub>2</sub> O.....	380.34	1.618–1.645	77°
4	“ (disod.)	Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O....	358.3	1.5235 <sup>16°</sup>	35°
5	“ (mono-)	NaH <sub>2</sub> PO <sub>4</sub> .H <sub>2</sub> O.....	138.08	2.040	2H <sub>2</sub> O, 200°
6	“ meta-..	Na <sub>4</sub> P <sub>4</sub> O <sub>12</sub> .....	408.20	2.476	617°
7	“ pyro-...	Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .10H <sub>2</sub> O....	446.36	1.824	anh. 970°
8	“ “ (di- sodium)	Na <sub>2</sub> H <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .6H <sub>2</sub> O....	330.21	1.848	.....
9	phosphite.....	Na <sub>2</sub> HPO <sub>3</sub> .5H <sub>2</sub> O.....	216.19	.....	53°
10	“ acid....	2NaH <sub>2</sub> PO <sub>3</sub> .5H <sub>2</sub> O....	298.21	.....	42°
11	platinate.....	Na <sub>2</sub> PtO <sub>3</sub> .3H <sub>2</sub> O.....	342.95	.....	†
12	potass. carbonate..	NaKCO <sub>3</sub> .6H <sub>2</sub> O.....	230.30	1.6334	6H <sub>2</sub> O, 100°
13	“ tartrate...	NaKC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .4H <sub>2</sub> O..	282.30	1.77	70°–80°
14	salicylate.....	NaC <sub>7</sub> H <sub>5</sub> O <sub>3</sub> .....	160.09	.....	.....
15	selenate.....	Na <sub>2</sub> SeO <sub>4</sub> .....	189.30	3.209 <sup>17.2°</sup>	.....
16	selenide.....	Na <sub>2</sub> Se.....	125.30	.....	fusible
17	silicate.....	Na <sub>2</sub> SiO <sub>3</sub> .....	122.50	.....	10.07°
18	“ (water glass)	Na <sub>2</sub> Si <sub>4</sub> O <sub>9</sub> .....	303.70	.....	.....
19	stannate.....	Na <sub>2</sub> SnO <sub>3</sub> .3H <sub>2</sub> O.....	267.15	.....	.....
20	sulphate.....	Na <sub>2</sub> SO <sub>4</sub> .....	142.16	2.671 <sup>‡</sup>	860°–897°
21	“ .....	Na <sub>2</sub> SO <sub>4</sub> .7H <sub>2</sub> O.....	268.27	.....	.....
22	“ .....	Na <sub>2</sub> SO <sub>4</sub> .10H <sub>2</sub> O.....	322.32	1.492 <sup>20°</sup>	32.383°
23	“ acid.....	NaHSO <sub>4</sub> .....	120.12	2.435 <sup>13°</sup>	300°
24	sulphide mono-...	Na <sub>2</sub> S.....	78.16	2.471	infusible
25	“ penta-...	Na <sub>2</sub> S <sub>5</sub> .....	206.40	.....	.....
26	sulphite.....	Na <sub>2</sub> SO <sub>3</sub> .....	126.16	.....	150°
27	“ .....	Na <sub>2</sub> SO <sub>3</sub> .7H <sub>2</sub> O.....	252.27	1.561	7H <sub>2</sub> O, 150°
28	“ acid.....	NaHSO <sub>3</sub> .....	104.12	1.48	decomp.
29	sulphocyanate.....	NaCNS.....	81.15	.....	.....
30	tartrate.....	Na <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .2H <sub>2</sub> O....	230.16	1.794	.....
31	thioantimonate (Schlipp's salt)	Na <sub>3</sub> SbS <sub>4</sub> .9H <sub>2</sub> O.....	479.73	1.864	.....
32	thioarsenate.....	2Na <sub>3</sub> AsS <sub>4</sub> .15H <sub>2</sub> O....	815.02	.....	.....
33	thiocarbonate.....	Na <sub>2</sub> CS <sub>3</sub> .H <sub>2</sub> O.....	172.30	.....	decomp.
34	thioplattinate.....	Na <sub>4</sub> Pt <sub>3</sub> S <sub>6</sub> .....	868.96	.....	.....
35	thiosulphate.....	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> .5H <sub>2</sub> O.....	248.30	1.729 <sup>17°</sup>	32°–48°
36	tungstate.....	Na <sub>2</sub> WO <sub>4</sub> .2H <sub>2</sub> O.....	330.13	3.259 <sup>17.5°</sup>	2H <sub>2</sub> O, 100°
37	uranate.....	Na <sub>2</sub> UO <sub>4</sub> .....	348.60	.....	.....
38	vanadate.....	Na <sub>3</sub> VO <sub>4</sub> .16H <sub>2</sub> O.....	472.61	.....	866 (anh.)

\* Loses 11 H<sub>2</sub>O at 100°. † Loses 12H<sub>2</sub>O at 100°. ‡ 3H<sub>2</sub>O, 150°–170°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	s. soluble	.....	.....	black crystals..
2	.....	decomp.	decomp.	decomp. HCl.....	red crystals....
3 *	.....	28.3 <sup>15°</sup>	v. soluble	.....	hexagonal.....
4 †	.....	6.3 <sup>0°</sup>	236.8 <sup>100°</sup>	insoluble alcohol.....	rhombic.....
5	.....	v. soluble	.....	insoluble alcohol.....	rhombic.....
6 †	.....	insoluble	insoluble	soluble acids, alkalies ..	.....
7	.....	5.4 <sup>0°</sup>	93	insoluble alcohol.....	monoclinic.....
8	.....	.....	.....	.....	.....
9	.....	soluble	v. soluble	insoluble alcohol.....	rhombohedral..
10 §	.....	56 <sup>0°</sup>	193 <sup>42°</sup>	.....	.....
11	.....	soluble	.....	insoluble alcohol.....	yellow.....
12	.....	185 <sup>15°</sup>	.....	.....	monoclinic.....
13	.....	26 <sup>0°</sup>	66 <sup>26°</sup>	.....	trimet. prisms..
14	.....	v. soluble	.....	.....	.....
15	.....	v. soluble	.....	.....	.....
16	.....	decomposes	.....	.....	crystals.....
17	.....	soluble	soluble	insol. al. Na and K salts .....	.....
18	.....	soluble	soluble	insol. al., Na and K salts .....	amorphous....
19	.....	67.4 <sup>0°</sup>	61.3 <sup>20°</sup>	insoluble alcohol.....	hexag. plates..
20	.....	4.8 <sup>0°</sup>	42.5 <sup>100°</sup>	insoluble alcohol.....	rhomb. monocl. or hexagonal.
21	.....	44.84 <sup>0°</sup>	202.6 <sup>26°</sup>	.....	rhomb. or tetr.
22	.....	12.16 <sup>0°</sup>	412 <sup>34°</sup>	insoluble alcohol.....	monoclinic.....
23	.....	50 <sup>0°</sup>	100 <sup>100°</sup>	decomp. by alcohol....	triclinic.....
24	.....	soluble	soluble	s. sol. al.; insol. ether...	flesh col. amor.
25	.....	soluble	soluble	s. sol. alcohol.....	.....
26 decomp	.....	14.1 <sup>0°</sup>	49.5 <sup>40°</sup>	insoluble alcohol.....	.....
27 decomp.	.....	25 <sup>15°</sup>	100 <sup>100°</sup>	insoluble alcohol.....	monocl. prisms
28	.....	s. soluble	soluble	insoluble alcohol.....	.....
29	.....	v. soluble	v. soluble	v. soluble alcohol.....	rhombic plates
30	.....	29 <sup>6°</sup>	66 <sup>42.5°</sup>	insoluble alcohol.....	trimet. prisms.
31	.....	33	.....	insoluble alcohol.....	yellow regular.
32	.....	v. soluble	.....	insoluble alcohol.....	yel. monoclinic
33	.....	soluble	decomposes	.....	yellow....[dles
34	.....	insoluble	decomposes	.....	red rhomb. nee-
35 decomp.	.....	74.7 <sup>0°</sup>	301.5 <sup>60°</sup>	insoluble alcohol.[H <sub>2</sub> SO <sub>4</sub>	monocl. prisms
36	.....	41 <sup>0°</sup>	123.5 <sup>100°</sup>	insol. al., HCl, HNO <sub>3</sub> ,	rhombic tablets
37	.....	insoluble	insoluble	sol. dilute acids .....	yellow.....
38	.....	v. soluble	.....	insoluble alcohol.....	crystalline....

† Decomposes at red heat. § Loses 5H<sub>2</sub>O at 100°. || Loses 4H<sub>2</sub>O at 215°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water= 1. Air= 1(A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Stannic acid.....	H <sub>2</sub> SnO <sub>3</sub> .....	169.02	.....	.....
2	“ “ meta-	H <sub>10</sub> Sn <sub>5</sub> O <sub>15</sub> .....	845.08	.....	.....
3	“ “ thio-	H <sub>2</sub> SnS <sub>3</sub> .....	217.20	.....	.....
4	ammonium chloride	SnCl <sub>4</sub> .(NH <sub>4</sub> Cl) <sub>2</sub> .....	367.84	.....	.....
5	bromide.....	SnBr <sub>4</sub> .....	438.84	3.349 <sup>35°</sup>	30°-33°
6	chloride.....	SnCl <sub>4</sub> .....	260.80	2.2788†	-33°
7	fluoride.....	SnF <sub>4</sub> .....	195.00	4.780	750°
8	iodide.....	SnI <sub>4</sub> .....	626.88	4.696 <sup>11°</sup>	143°
9	oxide.....	SnO <sub>2</sub> .....	151.00	6.6-6.9	1127°
10	“ cryst.....	SnO <sub>2</sub> .....	151.00	6.7-6.85	infusible
11	oxychloride.....	SnOCl <sub>2</sub> .....	205.90	.....	.....
12	phosphate.....	2SnO <sub>2</sub> .P <sub>2</sub> O <sub>5</sub> .10H <sub>2</sub> O	624.16	3.98 (anh.)	.....
13	phosphide.....	SnP.....	151.00	6.56	.....
14	selenide.....	SnSe <sub>2</sub> .....	277.4	4.85	.....
15	sulphate.....	Sn(SO <sub>4</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	347.15	.....	.....
16	sulphide.....	SnS <sub>2</sub> .....	183.12	4.42-4.60	†
17	Stannous bromide...	SnBr <sub>2</sub> .....	278.92	5.117 <sup>17°</sup>	215.5°
18	chloride.....	SnCl <sub>2</sub> .....	189.90	.....	249.3°
19	“ (tin salt) ..	SnCl <sub>2</sub> .2H <sub>2</sub> O.....	225.93	2.71 <sup>15.5°</sup>	37.7°
20	ferricyanide.....	Sn <sub>3</sub> (Fe(CN) <sub>6</sub> ) <sub>2</sub> .....	781.28	.....	.....
21	ferrocyanide.....	Sn <sub>2</sub> Fe(CN) <sub>6</sub> .....	450.14	.....	.....
22	fluoride.....	SnF <sub>2</sub> .....	157.00	.....	.....
23	hydroxide.....	Sn(OH) <sub>2</sub> .....	153.02	.....	.....
24	iodide.....	SnI <sub>2</sub> .....	372.94	.....	316°
25	oxide.....	SnO.....	135.00	6.3	decomp.
26	oxychloride.....	SnOSnCl <sub>2</sub> .6H <sub>2</sub> O.....	433.00	.....	.....
27	selenide.....	SnSe.....	198.20	6.179 <sup>0°</sup>	.....
28	sulphate.....	SnSO <sub>4</sub> .....	215.06	.....	.....
29	sulphide.....	SnS.....	151.06	5.27 <sup>15°</sup>	950°-100°
30	teluride.....	SnTe.....	246.60	6.478 <sup>0°</sup>	.....
31	Strontium.....	Sr.....	87.6	2.54	900°
32	arsenate.....	SrHAsO <sub>4</sub> .H <sub>2</sub> O.....	245.02	3.606 <sup>15°</sup>	.....
33	arsenite.....	Sr(AsO) <sub>2</sub> .4H <sub>2</sub> O.....	373.66	.....	.....
34	borate.....	SrB <sub>4</sub> O <sub>7</sub> .4H <sub>2</sub> O.....	315.66	.....	.....
35	boride.....	SrB <sub>6</sub> .....	153.6	3.28 <sup>15°</sup>	.....
36	bromate.....	Sr(BrO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O.....	361.54	3.773	dec. 240°
37	bromide.....	SrBr <sub>2</sub> .....	247.52	4.216 <sup>34</sup>	498-630°
38	“.....	SrBr <sub>2</sub> .6H <sub>2</sub> O.....	355.62	2.358	.....
39	carbide.....	SrC <sub>2</sub> .....	111.6	3.19	.....

\* Orange red octahedra.

† Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	s. soluble	insoluble	sol. dil. acids, alk. ....	amorphous ...
2	.....	insoluble	insoluble	insol. acids; sol. KOH..	.....
3	.....	insoluble	.....	.....	gray .....
4	.....	soluble	.....	.....	.....
5	203°	soluble	decomp.	..... [tine	.....
6	114°	soluble	decomp.	sol. al., CS <sub>2</sub> , oil of turpen-	liquid .....
7	.....	v. soluble	.....	.....	crystals .....
8	341°	v. soluble	.....	145 <sup>15</sup> ° CS <sub>2</sub> ; sol. al., ether	* .....
9	.....	insoluble	insoluble	soluble conc. H <sub>2</sub> SO <sub>4</sub> ....	amorphous ...
10	.....	insoluble	insoluble	soluble conc. H <sub>2</sub> SO <sub>4</sub> ....	tetrag. hexag.
11	.....	soluble	.....	.....	[or rhombic
12	.....	insoluble	insoluble	insoluble HNO <sub>3</sub> .....	.....
13	.....	insoluble	.....	sol. HCl; insol. HNO <sub>3</sub> ..	.....
14	.....	insoluble	.....	insol. dil. a.; sol. alk.,	crystals .....
				hot conc. H <sub>2</sub> SO <sub>4</sub>	
15	.....	v. soluble	.....	sol. dil. H <sub>2</sub> SO <sub>4</sub> , HCl....	rhomb. leaflets
16	.....	insoluble	insoluble	sol. conc. HCl, alk. sul-	yellow hexag.
17	617°-634°	soluble	decomposes	..... [phides	yellow crystals
18	603°-628°	83.9°	269.8 <sup>15</sup> °	sol. alk., al., tartaric acid	.....
19	decomp.	100.7°	323 <sup>15</sup> °	sol. alk., al., tartaric acid	monoclinic....
20	.....	insoluble	.....	sol. HCl.....	.....
21	.....	insoluble	.....	sol. hot conc. HCl.....	.....
22	.....	v. soluble	.....	.....	prisms .....
23	.....	insoluble	decomp.	sol. dil. a., alk.; insol.	yellow. amor.
				NH <sub>4</sub> OH	
24	.....	s. soluble	soluble	sol. dil. HCl, KOH.....	red crystals...
25	.....	insoluble	.....	sol. a., NH <sub>4</sub> Cl; insol. alk.	black regular..
26	.....	insoluble	insoluble	sol. dil. acids., al.....	.....
27	.....	insoluble	.....	sol. alk. sulphides.....	steel gray pr.
28	.....	18.9 <sup>19</sup> °	18.2 <sup>100</sup> °	sol. H <sub>2</sub> SO <sub>4</sub> .....	crystals .....
29	1090°	insoluble	insoluble	sol. conc. HCl, (NH <sub>4</sub> ) <sub>2</sub> Sx	gray crystals..
30	.....	.....	.....	insol. conc. HCl.....	gray crystals..
31	burns	decomp.	decomp.	sol. acids, alcohol.....	crystalline....
32	.....	0.284 <sup>15.5</sup> °	decomp.	sol. in acids....[H <sub>3</sub> AsO <sub>4</sub>	rhomb. needles
33	.....	s. soluble	.....	s. soluble al., Sr(OH) <sub>2</sub> ,	crystalline....
34	.....	.....	77 <sup>100</sup> °	sol. HNO <sub>3</sub> , NH <sub>4</sub> salts...	.....
35	.....	insoluble	insoluble	soluble HNO <sub>3</sub> .....	black crystals.
36	‡	33 <sup>15</sup> °-18°	.....	.....	monocl. prisms
37	.....	87.7°	250 <sup>110</sup> °	sol. ethyl & amyl. al....	needles .....
38	.....	126°	359 <sup>110</sup> °	.....	.....
39	.....	decomp.	decomp.	decomp. by acids.....	black crystals.

‡ Loses H<sub>2</sub>O at 120°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water= 1. Air= 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Strontium carbonate.	SrCO <sub>3</sub> .....	147.6	3.62	dec. 1155°
2	chlorate.....	Sr(ClO <sub>3</sub> ) <sub>2</sub> .....	254.50	3.152	dec. 290°.
3	".....	Sr(ClO <sub>3</sub> ) <sub>2</sub> .....	398.63	.....	.....
4	chloride.....	SrCl <sub>2</sub> .....	158.5	3.054	796°-854°
5	".....	SrCl <sub>2</sub> .6H <sub>2</sub> O.....	266.60	1.964 <sup>16.7°</sup>	112° *
6	chromate.....	SrCrO <sub>4</sub> .....	203.70	3.895 <sup>15°</sup>	.....
7	cyanide.....	Sr(CN) <sub>2</sub> .4H <sub>2</sub> O.....	211.74	.....	decomp.
8	dithionate.....	SrS <sub>2</sub> O <sub>6</sub> .4H <sub>2</sub> O.....	319.78	2.373	4H <sub>2</sub> O, 78°
9	ferrocyanide.....	Sr <sub>2</sub> Fe(CN) <sub>6</sub> .15H <sub>2</sub> O..	657.58	.....	.....
10	fluoride.....	SrF <sub>2</sub> .....	125.60	4.21	902°
11	fluosilicate.....	SrSiF <sub>6</sub> .2H <sub>2</sub> O.....	266.03	2.999	†
12	formate.....	Sr(CHO <sub>2</sub> ).2H <sub>2</sub> O....	213.65	2.25	decomp.
13	hydrosulphide.....	Sr(SH) <sub>2</sub> .....	153.74	.....	decomp.
14	hydroxide.....	Sr(OH) <sub>2</sub> .....	121.62	3.625	.....
15	".....	Sr(OH) <sub>2</sub> .8H <sub>2</sub> O.....	265.74	1.396 <sup>16°</sup>	.....
16	iodide.....	SrI <sub>2</sub> .....	341.54	4.415 <sup>10°</sup> .	507°-645°
17	".....	SrI <sub>2</sub> .6H <sub>2</sub> O.....	449.64	4.415	.....
18	molybdate.....	SrMoO <sub>4</sub> .....	247.6	4.145	.....
19	nitrate.....	Sr(NO <sub>3</sub> ) <sub>2</sub> .....	211.68	2.98 <sup>16.8°</sup>	645°
20	".....	Sr(NO <sub>3</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	283.74	2.249 <sup>15.5°</sup>	.....
21	nitrite.....	Sr(NO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O.....	197.70	.....	H <sub>2</sub> O, 44°
22	oxalate.....	SrC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O.....	193.62	.....	decomp.
23	oxide.....	SrO.....	103.6	4.45-4.75	3000°
24	" per-.....	SrO <sub>2</sub> .....	119.6	0.546	decomp.
25	" ".....	SrO <sub>2</sub> .8H <sub>2</sub> O.....	263.73	.....	8H <sub>2</sub> O, 100
26	permanganate.....	Sr(MnO <sub>4</sub> ) <sub>2</sub> .3H <sub>2</sub> O....	379.65	.....	decomp.
27	phosphate acid.....	SrHPO <sub>4</sub> .....	183.61	3.544 <sup>15°</sup>	.....
28	selenate.....	SrSeO <sub>4</sub> .....	230.80	4.23	.....
29	sulphate.....	SrSO <sub>4</sub> .....	183.66	3.71-3.97	§
30	" acid.....	Sr(HSO <sub>4</sub> ) <sub>2</sub> .....	281.74	.....	decomp.
31	sulphide mono-.....	SrS.....	119.66	3.72 <sup>15°</sup>	.....
32	" tetra-.....	SrS <sub>4</sub> .6H <sub>2</sub> O.....	323.94	.....	.....
33	sulphite.....	SrSO <sub>3</sub> .....	167.66	.....	decomp.
34	sulphocyanate.....	Sr(CNS) <sub>2</sub> .3H <sub>2</sub> O.....	257.85	.....	3H <sub>2</sub> O, 100°
35	tartrate.....	SrC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .4H <sub>2</sub> O....	307.70	1.966 <sup>19.8</sup> <sub>4</sub>	.....
36	thiosulphate.....	SrS <sub>2</sub> O <sub>3</sub> .5H <sub>2</sub> O.....	289.80	2.178 <sup>17°</sup>	4H <sub>2</sub> O, 100°
37	Sulphur amorph. soft	S <sub>8</sub> .....	256.48	1.955 <sup>60°</sup>	> 120°
38	" yellow .	S <sub>8</sub> .....	256.48	2.046	.....

\* Loses 4H<sub>2</sub>O at 60° 6H<sub>2</sub>O at 100°      † Decomposes at 1000°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	0.0011 <sup>18°</sup>	.....	0.12 H <sub>2</sub> CO <sub>3</sub> aq.; sol. a., NH <sub>4</sub> salts	rhombic.....
2	.....	soluble	v. soluble	soluble alcohol.....	rhomb. or mon.
3	.....	soluble	v. soluble	soluble alcohol.....	needles.....
4	.....	44.2 <sup>20°</sup>	101.9 <sup>100°</sup>	sol. absolute alcohol...	.....
5	.....	106.2 <sup>20°</sup>	205.8 <sup>40°</sup>	.....	hexag. needles
6	.....	0.12	.....	sol. acetic acid, NH <sub>4</sub> salts	monocl. prisms
7	.....	v. soluble	.....	.....	crystalline....
8	.....	22 <sup>16°</sup>	67 <sup>100°</sup>	insoluble alcohol.....	hexag. plates..
9	.....	50	100	.....	yellow monocl.
10	†	0.012 <sup>18°</sup>	s. soluble	insol. HF; sol. HCl.....	reg. octahedra
11	heat	3.2 <sup>15°</sup>	.....	0.06 <sup>15°</sup> , 50% al.; sol. HCl	tetrag. prisms.
12	.....	soluble	soluble	.....	rhombic.....
13	.....	soluble	decomp.	.....	crystals.....
14	.....	0.41 <sup>10°</sup>	21.83 <sup>100°</sup>	soluble NH <sub>4</sub> Cl.....	.....
15	.....	0.90 <sup>0°</sup>	47.71 <sup>100°</sup>	soluble NH <sub>4</sub> Cl.....	tetragonal....
16	decomp.	164 <sup>0°</sup>	370 <sup>100°</sup>	.....	plates.....
17	.....	215.9 <sup>0°</sup>	516.4 <sup>100°</sup>	.....	crystals.....
18	.....	.....	.....	.....	.....
19	.....	39.5 <sup>0°</sup>	101.1 <sup>100°</sup>	0.012 absolute al. ....	reg. octahedra
20	.....	53 <sup>0°</sup>	135.5 <sup>100°</sup>	insol. HNO <sub>3</sub> .....	triclinic.....
21	.....	62.83 <sup>19.5°</sup>	.....	.....	hexagonal....
22	.....	0.0051 <sup>18°</sup>	5 <sup>100°</sup>	sol. HCl.....	.....
23	.....	decomp. to Sr(OH) <sub>2</sub>	.....	s. sol. al.; insol. ether...	gray white rhombic
24	.....	0.008 <sup>20°</sup>	decomp.	v. sol. a., NH <sub>4</sub> Cl.....	.....
25	.....	0.018 <sup>20°</sup>	decomp.	insol. NH <sub>4</sub> OH.....	crystalline....
26	.....	270 <sup>0°</sup>	291 <sup>18°</sup>	.....	purple regular.
27	.....	insoluble	.....	sol. a., NH <sub>4</sub> salts.....	rhombic plates
28	.....	insoluble	.....	insol. HNO <sub>3</sub> ; sol. hot HCl	rhombic.....
29	.....	0.0114 <sup>18°</sup>	0.0104 <sup>100°</sup>	insol. dil. H <sub>2</sub> SO <sub>4</sub> , al.; s. sol. acids	rhombic.....
30	.....	decomposes	.....	14 <sup>70°</sup> conc. H <sub>2</sub> SO <sub>4</sub> .....	.....
31	.....	sol. and dec.	.....	soluble alcohol.....	cubical.....
32	.....	soluble	.....	soluble alcohol.....	reddish cryst.
33	.....	s. soluble	.....	v. soluble H <sub>2</sub> SO <sub>3</sub> .....	crystals.....
34		v. soluble	.....	v. soluble alcohol.....	.....
35	.....	0.7 <sup>16°</sup>	.....	.....	monocl. prisms
36	.....	25 <sup>13°</sup>	57 <sup>100°</sup>	insoluble alcohol.....	monoclinic....
37	444.6°	insoluble	insoluble	partly sol. CS <sub>2</sub> .....	pale yel. amor-
38	444.6°	insoluble	.....	insoluble CS <sub>2</sub> .....	phous

† 2H<sub>2</sub>O gentle heat. § Decomposes at wh. ht. || Decomposes at 160°–170°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
<b>Sulphur</b>					
1	colloidal S $\delta$ .....	S <sub>8</sub> .....	256.48	.....	.....
2	plastic S $\gamma$ .....	S <sub>8</sub> .....	256.48	1.92	.....
3	monoclinic S $\beta$ .....	S <sub>8</sub> .....	256.48	1.958	119.25°
4	rhombic S $\alpha$ .....	S <sub>8</sub> .....	256.48	2.05–2.07 <sup>00</sup>	114.5°
5	chloride mono-.....	S <sub>2</sub> Cl <sub>2</sub> .....	135.02	1.7094 $\frac{1}{2}$	–80°
6	“ tetra-.....	SCl <sub>4</sub> .....	173.86	.....	–30°
7	bromide.....	S <sub>2</sub> Br <sub>2</sub> .....	224.04	2.6355 <sup>200</sup>	–46°
8	chloriodide.....	SCl <sub>7</sub> I.....	407.18	.....	decomp.
9	hexafluoride.....	SF <sub>6</sub> .....	146.06	5.03	–55°
10	iodide mono-.....	S <sub>2</sub> I <sub>2</sub> .....	318.06	.....	66.1–66.2
11	monoxytetrachlo- ride	S <sub>2</sub> OCl <sub>4</sub> .....	221.92	{ 386 <sup>100</sup> D	decomp.
				{ 1.656 <sup>00</sup>	
12	oxide di-.....	SO <sub>2</sub> .....	64.06	{ 2.2639 D	–76.1°
				{ 1.43368 <sup>00</sup>	
13	“ sesqui-.....	S <sub>2</sub> O <sub>3</sub> .....	112.12	.....	decomp.
14	“ $\alpha$ -tri-.....	SO <sub>3</sub> .....	80.06	{ 2.75D	14.8°
				{ 1.97 <sup>20</sup>	
15	“ $\beta$ -tri-.....	(SO <sub>3</sub> ) <sub>2</sub> .....	160.12	1.040	50°
16	“ hepta-.....	S <sub>2</sub> O <sub>7</sub> .....	176.12	.....	0°
17	pentoxydichloride	S <sub>2</sub> O <sub>5</sub> Cl <sub>2</sub> .....	.....	1.819 <sup>18</sup>	–39°
18	trioxytetrachloride	S <sub>2</sub> O <sub>3</sub> Cl <sub>4</sub> .....	253.92	.....	57°
19	<b>Sulphuric Acid</b> .....	H <sub>2</sub> SO <sub>4</sub> .....	98.08	1.8342 $\frac{1}{2}$	10.5°
20	“ “.....	H <sub>2</sub> SO <sub>4</sub> .H <sub>2</sub> O.....	116.09	1.788 <sup>17</sup>	8.53°
21	“ “.....	H <sub>2</sub> SO <sub>4</sub> .2H <sub>2</sub> O.....	134.11	1.665 <sup>00</sup>	–38.9°
22	“ “ pyro-.....	H <sub>2</sub> S <sub>2</sub> O <sub>7</sub> .....	178.14	1.89	35°
23	“ oxychloride	SO <sub>2</sub> Cl <sub>2</sub> .....	134.96	1.66738 $\frac{3}{2}$	.....
24	“ oxyfluoride	SO <sub>2</sub> F <sub>2</sub> .....	102.06	.....	–120°
<b>Sulphurous</b>					
25	oxybromide.....	SOBr <sub>2</sub> .....	223.98	2.61 <sup>00</sup>	.....
26	oxychloride.....	SOCl <sub>2</sub> .....	118.96	1.6767 $\frac{1}{2}$	.....
27	oxyfluoride.....	SOF <sub>2</sub> .....	86.06	3.0076	–110°
28	<b>Tantalum</b> .....	Ta.....	183	10.08–10.78	2250°
29	bromide.....	TaBr <sub>5</sub> .....	582.80	.....	.....
30	chloride.....	TaCl <sub>5</sub> .....	360.25	.....	211.3°
31	fluoride.....	TaF <sub>5</sub> .....	278.00	.....	.....
32	nitride.....	Ta <sub>3</sub> N <sub>5</sub> .....	619.20	.....	burns....
33	oxide di-.....	TaO <sub>2</sub> .....	215.00	.....	oxidizes..
34	“ tetr-.....	Ta <sub>2</sub> O <sub>4</sub> .....	430	.....	oxidize
35	“ pent-.....	Ta <sub>2</sub> O <sub>5</sub> .....	446.00	7.6	infusible

\* Decomposes at 20°.

† At 0.18 mm.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	444.6°	soluble	.....	insol. NaCl.....	pale yellow...
2	444.6°	insoluble	.....	insol. CS <sub>2</sub> .....	citron yel. am.
3	444.6°	insoluble	insoluble	sol. CS <sub>2</sub> , al., CH <sub>3</sub> Cl, C <sub>6</sub> H <sub>6</sub>	yellow prisms.
4	444.6°	insoluble	insoluble	24°, 181.3° CS <sub>2</sub> .....	yellow octahed.
5	138°	decomposes	decomposes	sol. CS <sub>2</sub> , C <sub>6</sub> H <sub>6</sub> , al., ether.	yel. red liquid
6	*	decomposes	decomposes	.....	yel. brown liq.
7	54° †	decomposes	decomposes	.....	red.....
8	.....	decomposes	.....	.....	red yel. prisms
9	-50°	s. soluble	.....	s. sol. al.; sol. KOH....	crystals.....
10	.....	.....	.....	soluble CS <sub>2</sub> .....	gray black rhb.
11	.....	decomposes	decomposes	.....	deep red liquid
12	-8°	7979 c.c. <sup>0°</sup>	1560 c.c. <sup>50°</sup>	sol. al., H <sub>2</sub> SO <sub>4</sub> , H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	.....
13	.....	decomposes	.....	decomp. by al., ether ..	blue green crys.
14	46.2°	decomposes	decomposes	sol. conc. H <sub>2</sub> SO <sub>4</sub> .....	prismatic crys.
15	.....	decomposes	decomposes	.....	silky needles..
16	decomp.	decomposes	decomposes	sol. conc. H <sub>2</sub> SO <sub>4</sub> .....	needles.....
17	142°	decomposes	decomposes	.....	liquid.....
18	sublimes	decomposes	decomposes	.....	crystalline....
19	‡	∞	∞	decomposes alcohol....	.....
20	210°-338°	∞	∞	decomposes alcohol....	prisms.....
21	170°-190°	∞	∞	decomposes alcohol....	.....
22	decomposes	decomposes	decomposes	decomposes.....	crystals.....
23	69.15°	decomposes	.....	sol. glacial acetic acid...	liquid.....
24	-52°	10 <sup>90°</sup>	.....	soluble alkalies.....	.....
25	68° ¶	decomposes	.....	.....	orange yellow.
26	78°	decomposes	.....	.....	liquid.....
27	-30°	decomposes	decomposes	soluble ether, benzine..	.....
28	.....	insoluble	insoluble	insol. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> sol. HF	blk. crystalline
29	.....	decomposes	.....	.....	yellow crystals
30	242°	decomposes	.....	sol. H <sub>2</sub> SO <sub>4</sub> , abs. alcohol.	pale yel. prisms
31	.....	.....	.....	sol. HF.....	crystals.....
32	.....	insoluble	.....	insol. a.; sol. HNO <sub>3</sub> + HF	yellow amorph.
33	.....	insoluble	.....	insoluble acids.....	brown powder
34	.....	insoluble	.....	insoluble acids.....	dark gray.....
35	.....	insoluble	.....	insol. a.; sol. HF.....	rhomb. prisms

‡ Decomposes at 40°.

¶ At 40 mm.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Tantalum sulphide..	Ta <sub>2</sub> S <sub>4</sub> .....	494.26	.....	oxidizes
2	Tartaric Acid .....	H <sub>2</sub> .C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	150.05	1.7549	decomp.
3	TellurettedHydrogen	H <sub>2</sub> Te.....	129.62	4.39 D	-48°
4	Telluric Acid.....	H <sub>2</sub> TeO <sub>4</sub> .....	193.62	3.425 <sup>18.8°</sup>	dec. 160°
5	" " α	H <sub>2</sub> TeO <sub>4</sub> .2H <sub>2</sub> O.....	229.65	3.053	2H <sub>2</sub> O, 130°
6	" " β	H <sub>2</sub> TeO <sub>4</sub> .2H <sub>2</sub> O.....	229.65	3.071	2H <sub>2</sub> O, 130°
7	Tellurium .....	Te.....	127.6	6.015 <sup>20°</sup>	446°
8	" .....	Te.....	127.6	6.27	452°
9	bromide di-.....	TeBr <sub>2</sub> .....	287.52	.....	280°
10	bromide tetra-.....	TeBr <sub>4</sub> .....	447.44	4.31 <sup>18</sup>	380°
11	chloride di-.....	TeCl <sub>2</sub> .....	198.50	6.89 D	175°
12	" tetra-.....	TeCl <sub>4</sub> .....	269.40	9.2 D	214°
13	iodide di-.....	TeI <sub>2</sub> .....	381.54	.....	.....
14	" tetra-.....	TeI <sub>4</sub> .....	635.48	.....	.....
15	nitrate .....	4TeO <sub>2</sub> .N <sub>2</sub> O <sub>5</sub> .1½H <sub>2</sub> O..	773.50	.....	.....
16	oxide mon-.....	TeO.....	143.60	.....	oxidizes
17	" di-.....	TeO <sub>2</sub> .....	159.60	5.89 <sup>0°</sup>	dull red- ness
18	" tri-.....	TeO <sub>3</sub> .....	175.60	5.0704 <sup>14.5°</sup>	decomp.
19	" thio-.....	TeSO <sub>3</sub> .....	207.66	.....	30°
20	sulphite .....	(TeO <sub>2</sub> ) <sub>2</sub> SO <sub>3</sub> .....	309.26	.....	.....
21	Tellurous Acid α .....	H <sub>2</sub> TeO <sub>3</sub> .....	177.62	3.035	dec. 40°
22	" " β	H <sub>2</sub> TeO <sub>3</sub> .....	177.62	3.071	.....
23	Terbium .....	Tb.....	160.	.....	.....
24	oxide .....	Tb <sub>2</sub> O <sub>3</sub> .....	368.00	.....	.....
25	Thallium .....	Tl.....	204.1	11.85	301.7°
26	acetate .....	TlC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	263.12	.....	.....
27	bromide mono-.....	TlBr.....	284.06	7.540 <sup>21.7°</sup>	458°
28	" tri-.....	TlBr <sub>3</sub> .....	443.98	.....	decomp.
29	" di-.....	TlBr <sub>2</sub> .....	364.02	.....	.....
30	carbonate .....	Tl <sub>2</sub> CO <sub>3</sub> .....	468.20	7.06-7.16	272°
31	chlorate .....	TlClO <sub>3</sub> .....	287.55	5.047 <sup>9°</sup>	.....
32	chloride mono-.....	TlCl.....	239.55	7.02	451°
33	" sesqui- .....	Tl <sub>2</sub> Cl <sub>3</sub> .....	514.55	5.9	400°-500°
34	" tri-.....	TlCl <sub>3</sub> .....	310.45	.....	25°
35	" " .....	TlCl <sub>3</sub> .4H <sub>2</sub> O.....	328.47	.....	36°-37°
36	chloroplatinate ...	Tl <sub>2</sub> PtCl <sub>6</sub> .....	815.7	5.76 <sup>17°</sup>	.....
37	chromate .....	Tl <sub>2</sub> CrO <sub>4</sub> .....	524.3	.....	.....
38	cyanide .....	TlCN.....	230.14	.....	decomp.
39	dichromate .....	Tl <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	624 40	.....	.....

\* Decomposes at 180°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1					
2		115°	343 <sup>100°</sup>	25.6 <sup>15°</sup> al.; sol. ether...	monocl. prisms
3	0°	soluble		soluble alk.	gas.
4		insoluble	s. soluble	insoluble cold a., alk.	
5		s. soluble	soluble	sol. a., alk.; insol. al.	regular octah.
6		s. soluble	soluble	sol. a., alk.; insol. al.	monocl. prisms
7	1390°	insoluble	insoluble	{ sol. conc. H <sub>2</sub> SO <sub>4</sub> , KCN, HNO <sub>3</sub> , aq. r., KOH; insol. CS <sub>2</sub>	amorphous...
8	1390°	insoluble	insoluble		rhombohedra. [dles
9	339°	decomposes			steel gray nee-
10	420°	v. soluble			orange.
11	327°	decomposes		decomposed by HCl.	black crystals.
12	414°	decomposes	soluble	sol. dil. HCl.	yel. crystalline
13		insoluble	insoluble		black crystals.
14		s. soluble	decomp.	soluble HI.	gray crystals.
15		decomposes		soluble HNO <sub>3</sub> .	orthorhombic
16		insoluble	insoluble	sol. HCl, H <sub>2</sub> SO <sub>4</sub> .	black amorph.
17	>700°	0.00067		sol. acids, alk.	yel. octahedral orthorhomb.
18		insoluble	insoluble	insol. a.; sol. hot KOH.	orange crystal.
19	*	decomp.		soluble H <sub>2</sub> SO <sub>4</sub> .	red amorphous
20					
21		s. soluble	decomp.	soluble acids, alk.	octahedral...
22					monocl. prisms
23					
24				soluble acids.	orange amorph.
25	1600°-1800°	insoluble	insoluble	sol. HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> .	bluish white..
26		v. soluble		v. soluble alcohol.	silky needles..
27		0.0466 <sup>20°</sup>	0.869 <sup>68.5°</sup>		
28		soluble	v. soluble	v. soluble alcohol.	yellow needles
29		decomp.	decomp.		yellow needles
30		4.02 <sup>15.5°</sup>	27.21 <sup>100°</sup>	insol. al., ether.	monoclinic....
31					
32	708°-719°	0.2°	1.6 <sup>100°</sup>	s. sol. HCl; insol. al., NH <sub>3</sub>	regular.....
33	decomp.	0.26 <sup>15°</sup>	1.9 <sup>100°</sup>		yel. hexagonal
34	decomp.	v. soluble			hexag. plates.
35		86.2 <sup>17°</sup>	decomp.		needles.....
36		insoluble		[acids, alk.	pale orange...
37		insoluble		insol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ; s. sol.	yellow.....
38		16.8 <sup>28.5°</sup>			tablets.....
39		insoluble		decomp. by acids.	red crystalline

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water= 1. Air= 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Thalliumferrocyanide	Tl <sub>4</sub> Fe(CN) <sub>6</sub> .2H <sub>2</sub> O . . .	1064.6	4.641	.....
2	fluoride mono- . . . .	TlF . . . . .	223.10	.....	.....
3	“ tri- . . . . .	TlF <sub>3</sub> . . . . .	261.1	.....	.....
4	fluosilicate . . . . .	Tl <sub>2</sub> SiF <sub>6</sub> .2H <sub>2</sub> O . . . . .	586.63	.....	.....
5	hydroxide (-ous) . .	TlOH . . . . .	221.11	.....	dec. 100°
6	“ (-ic) . . . . .	TlO.OH . . . . .	237.11	.....	H <sub>2</sub> O, 115°
7	“ (-ic) . . . . .	Tl(OH) <sub>3</sub> . . . . .	255.12	.....	.....
8	iodide mono- . . . .	TlI . . . . .	331.07	7.072 <sup>15.5°</sup>	439°
9	“ sesqui- . . . . .	Tl <sub>2</sub> I <sub>3</sub> . . . . .	789.11	.....	.....
10	“ tri- . . . . .	TlI <sub>3</sub> . . . . .	585.01	.....	.....
11	nitrate (-ous) . . . .	TlNO <sub>3</sub> . . . . .	266.14	5.55	205°
12	“ (-ic) . . . . .	Tl(NO <sub>3</sub> ) <sub>3</sub> . . . . .	390.22	.....	.....
13	oxide (-ous) . . . . .	Tl <sub>2</sub> O . . . . .	424.20	.....	300°
14	“ (-ic) . . . . .	Tl <sub>2</sub> O <sub>3</sub> . . . . .	456.20	5.56 <sup>0°</sup>	760°
15	perchlorate . . . . .	TlClO <sub>4</sub> . . . . .	303.55	4.89	501°
16	phosphate . . . . .	Tl <sub>3</sub> PO <sub>4</sub> . . . . .	707.30	6.89 <sup>10°</sup>	.....
17	selenate . . . . .	Tl <sub>2</sub> SeO <sub>4</sub> . . . . .	551.4	7.019 <sup>18°</sup>	.....
18	sulphate (-ous) . . . .	Tl <sub>2</sub> SO <sub>4</sub> . . . . .	504.26	6.77	632°
19	“ acid . . . . .	TlHSO <sub>4</sub> . . . . .	301.17	.....	115°-120°
20	“ (-ic) . . . . .	Tl <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .7H <sub>2</sub> O . . . . .	822.49	.....	6H <sub>2</sub> O, 200°
21	selenide . . . . .	Tl <sub>2</sub> Se . . . . .	487.40	.....	340° . .
22	sulphide (-ous) . . . .	Tl <sub>2</sub> S . . . . .	440.26	8.0	fusible
23	“ (-ic) . . . . .	Tl <sub>2</sub> S <sub>3</sub> . . . . .	504.38	.....	12°
24	sulphite (-ous) . . . .	Tl <sub>2</sub> SO <sub>3</sub> . . . . .	488.26	6.427 <sup>20°</sup>	.....
25	sulphocyanate . . . .	TlCNS . . . . .	262.20	.....	.....
26	Thorium . . . . .	Th . . . . .	232.5	11.00 <sup>17</sup>	.....
27	“ . . . . .	Th . . . . .	232.5	11.23	.....
28	boride . . . . .	ThB <sub>4</sub> . . . . .	276.5	7.5 <sup>15°</sup>	.....
29	“ . . . . .	ThB <sub>6</sub> . . . . .	298.5	6.4 <sup>15°</sup>	.....
30	bromide . . . . .	ThBr <sub>4</sub> . . . . .	552.34	5.62	.....
31	carbide . . . . .	ThC <sub>2</sub> . . . . .	256.50	8.96 <sup>18°</sup>	burns
32	carbonate . . . . .	Th(CO <sub>3</sub> ) <sub>2</sub> . . . . .	352.50	.....	.....
33	chloride . . . . .	ThCl <sub>4</sub> . . . . .	374.30	4.59	820°
34	fluoride . . . . .	ThF <sub>4</sub> .4H <sub>2</sub> O . . . . .	380.56	.....	H <sub>2</sub> O, 100 ‡
35	hydroxide . . . . .	Th(OH) <sub>4</sub> . . . . .	300.53	.....	.....
36	iodide . . . . .	ThI <sub>4</sub> . . . . .	740.38	.....	.....
37	nitrate . . . . .	Th(NO <sub>3</sub> ) <sub>4</sub> .12H <sub>2</sub> O . . . . .	696.89	.....	.....
38	oxalate . . . . .	Th(C <sub>2</sub> O <sub>4</sub> ) <sub>2</sub> . . . . .	418.50	4.637 <sup>16°</sup>	decomp.
39	oxide di- . . . . .	ThO <sub>2</sub> . . . . .	264.5	9.876 <sup>15°</sup>	infusible
40	“ per- . . . . .	Th <sub>2</sub> O <sub>7</sub> . . . . .	577.00	.....	.....

\* This form is stable below 72.8°. Between 72.8° and 142.5° rhombohedral crystals are formed and above 142.5° regular crystals.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		0.37 <sup>18°</sup>	3.93 <sup>101°</sup>		yellow triclinic
2		80 <sup>15°</sup>	v. soluble	s. sol. alcohol.	reg. octahedra
3		insoluble		insol. cold HCl.	olive green.
4		v. soluble			reg. octahedra
5		v. soluble		soluble alcohol. . . [alk.	pale yel. prisms
6		insoluble		sol. a., NH <sub>4</sub> salts; insol.	yellow crystals
7		insoluble		v. sol. dil. acids	brown hexag.
8	800°–806°	0.0064 <sup>20°</sup>	0.125 <sup>100°</sup>	insol. al., KI; sol. aq. r.	yellow regular.
9		insoluble		s. sol. alcohol.	black needles
10				soluble ether.	brown needles.
11		10.6 <sup>15°</sup>	588 <sup>107°</sup>	insoluble alcohol.	rhomb. prisms*
12		soluble			crystals.
13		v. soluble		soluble alcohol.	black.
14	decomp.	insoluble	insoluble	soluble acids; insol. alk.	d.violet hexag.
15	decomp.				
16		0.5 <sup>15°</sup>	0.67 <sup>100</sup>	insol. al.; sol. NH <sub>4</sub> salts.	needles.
17		s. soluble	soluble	insoluble al., ether.	prism. needles.
18	decomp.	47.4 <sup>15°</sup>	18.5 <sup>100</sup>		rhomb. prisms.
19					
20	decomp.	decomposes		soluble dil. H <sub>2</sub> SO <sub>4</sub> .	leaflets.
21		insoluble		insoluble warm acids.	gray crystals.
22	decomp.	0.0379 <sup>20°</sup>	s. soluble	sol. a.; insol. alk.	blue black tetr.
23	decomp.	insoluble	insoluble	soluble H <sub>2</sub> SO <sub>4</sub> .	black amorph.
24		3.34 <sup>15°</sup>	v. soluble	insoluble alcohol.	crystals.
25		0.315 <sup>20°</sup>		insoluble alcohol.	needles.
26		insoluble	insoluble	{ sol. HCl., H <sub>2</sub> SO <sub>4</sub> ; s. sol.	gray amorph.
27		insoluble	insoluble	{ HNO <sub>3</sub> , insol. alk.	crystalline.
28		insoluble	insoluble	sol. HNO <sub>3</sub> , conc. HCl	prisms.
29		insoluble	insoluble	sol. HNO <sub>3</sub> , conc. HCl	violet amorph.
30	725° †	soluble			crystals.
31		decomposes		[Na <sub>2</sub> CO <sub>3</sub>	
32		insoluble	decomp.	insol. CO <sub>2</sub> aq.; sol. conc.	
33		v. soluble		sol. KCl, al., ether.	needles.
34		insoluble		insoluble HF.	crystalline.
35		insoluble		soluble a.; insol. alk.	gelatinous.
36		soluble			
37		v. soluble		v. soluble alcohol.	plates.
38		insoluble		sol. hot (NH <sub>4</sub> ) <sub>2</sub> C <sub>2</sub> O <sub>4</sub> aq.	
39		insoluble		sol. hot H <sub>2</sub> SO <sub>4</sub> .	regular.
40		insoluble			

† In vacuo.

‡ Loses 2H<sub>2</sub>O at 140°–200°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1 Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
	<b>Thorium</b>				
1	platinocyanide . . . .	Th(Pt(CN) <sub>4</sub> ) <sub>2</sub> .16H <sub>2</sub> O	1118.7	2.460	.....
2	sulphate.....	Th(SO <sub>4</sub> ) <sub>2</sub> .....	424.62	4.2252 <sup>17°</sup>	.....
3	" .....	Th(SO <sub>4</sub> ) <sub>2</sub> .9H <sub>2</sub> O.....	586.76	2.766 <sup>16°</sup>	9H <sub>2</sub> O, 400°
4	sulphide.....	ThS <sub>2</sub> .....	296.62	8.29	.....
5	<b>Thulium</b> .....	Tm.....	171.	.....	.....
6	<b>Tin *</b> .....	Sn.....	119.0	6.53-6.56	sta. > 170°
7	" .....	Sn.....	119.0	7.2984 <sup>15°</sup>	232°
8	" .....	Sn.....	119.0	5.8466 <sup>15°</sup>	sta. < 20°
9	<b>Titanic Acid</b> .....	H <sub>2</sub> TiO <sub>3</sub> .....	98.12	.....	.....
10	<b>Titanium</b> .....	Ti.....	48.1	3.543	3000°
11	bromide tetra-....	TiBr <sub>4</sub> .....	367.94	2.6	39°
12	carbonitride.....	Ti <sub>5</sub> (CN) <sub>4</sub> .....	344.66	5.28	.....
13	chloride di-.....	TiCl <sub>2</sub> .....	119.0	.....	.....
14	" tri-.....	Ti <sub>2</sub> Cl <sub>3</sub> .....	308.90	.....	dec. 440°
15	" tetra-.....	TiCl <sub>4</sub> .....	189.90	1.7604 <sup>‡</sup>	- 25°
16	fluoride tri-.....	Ti <sub>2</sub> F <sub>6</sub> .....	210.20	.....	.....
17	" tetra-.....	TiF <sub>4</sub> .....	124.10	2.798 <sup>20.5°</sup>	284°-287°
18	iodide tetra-.....	TiI <sub>4</sub> .....	555.98	.....	150°
19	nitrate.....	5TiO <sub>2</sub> .N <sub>2</sub> O <sub>5</sub> .6H <sub>2</sub> O...	616.68	.....	.....
20	oxalate.....	Ti <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .10H <sub>2</sub> O...	540.36	.....	.....
21	oxide sesqui-.....	Ti <sub>2</sub> O <sub>3</sub> .....	144.20	.....	oxidizes
22	" di-.....	TiO <sub>2</sub> .....	80.10	3.75-4.25	1560°
23	" per-.....	TiO <sub>3</sub> .....	96.10	.....	.....
24	sulphate.....	Ti <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	384.38	.....	.....
25	<b>Tungsten</b> .....	W.....	184.	18.77	1700°
26	bromide di-.....	WBr <sub>2</sub> .....	343.92	.....	dec. 400°
27	" penta-.....	WBr <sub>5</sub> .....	583.80	.....	276°
28	carbide.....	W <sub>2</sub> C.....	380.	16.06 <sup>18°</sup>	.....
29	chloride di-.....	WCl <sub>2</sub> .....	254.90	.....	.....
30	" tetra-.....	WCl <sub>4</sub> .....	325.80	.....	decomp.
31	" penta-.....	WCl <sub>5</sub> .....	361.25	.....	248°
32	" hexa-.....	WCl <sub>6</sub> .....	396.70	13.3 <sup>350°</sup> D.	275°
33	dioxydibromide ...	WO <sub>2</sub> Br <sub>2</sub> .....	375.92	.....	red heat
34	dioxydichloride....	WO <sub>2</sub> Cl <sub>2</sub> .....	286.90	.....	266°
35	iodide.....	WI <sub>2</sub> .....	437.94	6.9 <sup>18°</sup>	.....
36	oxide di- (brown) ..	WO <sub>2</sub> .....	216.00	12.11	.....
37	" tri-.....	WO <sub>3</sub> .....	232.00	7.16	red heat
38	oxytetrabromide ..	WOBr <sub>4</sub> .....	519.84	.....	277°

\* For salts of Tin see " Stannic " and " Stannous."

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (A.), Alkalies (alk.), etc.	
1	.....	s. soluble	soluble	.....	[thorhombic yel. green or-
2	.....	0.74 <sup>00</sup>	6.76 <sup>550</sup>	.....	.....
3	.....	0.97 <sup>00</sup>	9.41 <sup>550</sup>	.....	monoclinic....
4	.....	insoluble	insoluble	s. sol. a.; sol. hot aq. r.	.....
5	.....	insoluble	insoluble	{ sol. HCl, H <sub>2</sub> SO <sub>4</sub> , dil.	rhombic .....
6	.....	insoluble	insoluble	{ HNO <sub>3</sub> , aq. r., hot	white tetrag.
7	1450°-1600°	insoluble	insoluble	{ KOH	gray .....
8	.....	.....	.....	.....	.....
9	.....	insoluble	insoluble	insol. al.; sol. a., alk...	.....
10	.....	insoluble	decomp.	soluble acids.....	d. gray amorp.
11	230°	decomposes	.....	.....	orange cryst. .
12	white heat	insoluble	insoluble	insol. a., sol. HNO <sub>3</sub> + HF	reddish octah.
13	.....	decomposes	.....	insol. CS <sub>2</sub> , ether, CHCl <sub>3</sub> .	black .....
14	.....	soluble	.....	v. sol. al.; insol. ether; sol. HCl	dark violet ...
15	136.4°	decomposes	.....	sol. dil. HCl .....	.....
16	.....	soluble	.....	.....[H <sub>2</sub> SO <sub>4</sub>	purple red....
17	>400°	decomposes	.....	insol. ether; sol. conc.	.....
18	360°	v. soluble	.....	.....	reddish octah..
19	.....	soluble	.....	.....	plates.....
20	.....	soluble	soluble	insoluble alcohol, ether.	yellow prisms.
21	.....	.....	.....	soluble H <sub>2</sub> SO <sub>4</sub> , HF.....	black amorph.
22	.....	insoluble	.....	sol. conc. H <sub>2</sub> SO <sub>4</sub> , alk...	white to black tetrag or rhom.
23	.....	.....	.....	soluble acids.....	yellow.....
24	.....	insoluble	insoluble	sol. dil. a.; insol. al. ether	green crystals.
25	.....	insoluble	insoluble	sol. HNO <sub>3</sub> , aq. r., conc. hot	gray to black..
26	.....	decomposes	.....	.....[KOH	bluish black...
27	333°	decomposes	.....	sol. caustic alkalies....	vio.-br. need.
28	.....	insoluble	.....	s. sol. HCl, H <sub>2</sub> SO <sub>4</sub> ; sol.	.....
29	.....	decomposes	.....	.....[HNO <sub>3</sub>	gray amorph..
30	.....	decomposes	.....	.....	gray crystals..
31	275.6°	decomposes	.....	s. soluble CS <sub>2</sub> .....	black needles .
32	346.7°	.....	dec. 60°	v. soluble CS <sub>2</sub> , POCl <sub>3</sub> ...	steel-blue reg..
33	decomposes	.....	.....	.....	red prisms....
34	.....	soluble	decomp.	sol. alk. and NH <sub>4</sub> OH...	yellow tablets.
35	.....	.....	.....	.....	greenish.....
36	.....	insoluble	.....	soluble conc. KOH, a..	brown rhombic
37	.....	insoluble	.....	insol. a.; sol. alk.....	yellow rhombic
38	327°	decomposes	.....	.....	black needles .

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
	<b>Tungsten</b>				
1	oxytetrachloride...	WOCl <sub>4</sub> .....	341.80	.....	208°–210°
2	phosphide.....	W <sub>2</sub> P.....	399.00	5.207	.....
3	“.....	WP.....	215	8.5	.....
4	“.....	WP <sub>2</sub> .....	246	5.8	decomp.
5	sulphide di-.....	WS <sub>2</sub> .....	248.10	7.5 <sup>10°</sup>	.....
6	“ tri-.....	WS <sub>3</sub> .....	280.18	.....	.....
7	<b>Tungstic Acid</b> .....	H <sub>2</sub> WO <sub>4</sub> .....	250.02	.....	$\frac{1}{2}$ H <sub>2</sub> O, 100°
8	“ “ meta	H <sub>2</sub> W <sub>4</sub> O <sub>13</sub> .....	946.02	.....	.....
9	<b>Uranic Acid</b> .....	H <sub>2</sub> UO <sub>4</sub> .....	304.52	5.93 <sup>15°</sup>	H <sub>2</sub> O, 250°–300°
10	<b>Uranium</b> .....	U.....	238.5	18.685 <sup>‡</sup>	800°
11	bromide tri-.....	UBr <sub>3</sub> .....	478.38	.....	.....
12	“ tetra-....	UBr <sub>4</sub> .....	558.34	4.838 <sup>‡</sup>	.....
13	carbide.....	U <sub>2</sub> C <sub>3</sub> .....	513.0	11.28 <sup>18°</sup>	.....
14	chloride tri-.....	UCl <sub>3</sub> .....	344.85	.....	.....
15	“ tetra-....	UCl <sub>4</sub> .....	380.30	.....	.....
16	“ penta-....	UCl <sub>5</sub> .....	415.75	.....	dec. 120°
17	fluoride tetra-....	UF <sub>4</sub> .....	314.50	.....	decomp.
18	oxide di-.....	UO <sub>2</sub> .....	270.50	10.95	oxidizes
19	“ (-oso, -ic)....	U <sub>3</sub> O <sub>8</sub> .....	843.50	7.31	decomp.
20	“ tri-.....	UO <sub>3</sub> .....	286.50	5.02–5.26	decomp.
21	“ per-.....	UO <sub>4</sub> .2H <sub>2</sub> O.....	338.53	.....	.....
22	sulphate (-ous)....	U(SO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	502.68	.....	4H <sub>2</sub> O, 300°
23	sulphide di-.....	US <sub>2</sub> .....	302.62	.....	oxidizes
24	“ sesqui-....	U <sub>2</sub> S <sub>3</sub> .....	573.18	.....	burns
25	<b>Uranyl acetate</b> ...[ate	UO <sub>2</sub> (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	424.58	.....	2H <sub>2</sub> O, 275°
26	ammonium carbon-	UO <sub>2</sub> CO <sub>3</sub> .2(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .....	522.77	.....	decomp.
27	chloride.....	UO <sub>2</sub> Cl <sub>2</sub> .....	341.40	.....	fusible
28	nitrate.....	UO <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	502.68	2.807	59.5°
29	phosphate....[ate	UO <sub>2</sub> (HPO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O..	534.58	.....	.....
30	potassium carbon-	UO <sub>2</sub> CO <sub>3</sub> .2K <sub>2</sub> CO <sub>3</sub> ....	607.10	.....	CO <sub>2</sub> , 300°
31	sodium carbonate .	UO <sub>2</sub> CO <sub>3</sub> .2Na <sub>2</sub> CO <sub>3</sub> ....	542.70	.....	.....
32	sulphate.....	UO <sub>2</sub> SO <sub>4</sub> .3H <sub>2</sub> O.....	420.61	3.280 <sup>16.5°</sup>	.....
33	sulphide.....	UO <sub>2</sub> S.....	302.56	.....	dec. 40–50
34	<b>Vanadic Acid</b> meta-	HVO <sub>3</sub> .....	100.21	.....	.....
35	“ “ pyro-	H <sub>4</sub> V <sub>2</sub> O <sub>7</sub> .....	218.43	.....	.....
36	<b>Vanadium</b> .....	V.....	51.2	5.87 <sup>15°</sup>	1680°

\* Burns at 150°–170°.

† Very volatile.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	227.5°	.....	.....	soluble CS <sub>2</sub> .....	red needles...
2	.....	.....	.....	insol. a.; sol. fused Na <sub>2</sub> CO <sub>3</sub> + NaNO <sub>3</sub>	dark gray pris.
3	.....	insoluble	.....	insol. alk., HCl; sol. HNO <sub>3</sub> + HF	gray prisms...
4	.....	insoluble	insoluble	insol. al., ether; sol. HNO <sub>3</sub> + HF	black crystals.
5	.....	.....	.....	oxidized by HNO <sub>3</sub>	dark gray crys.
6	.....	s. soluble	soluble	sol. alk. sulphides, alk.	black powder.
7	.....	insoluble	s. soluble	sol. alkalies.....	yellow.....
8	.....	soluble	.....	.....	yellow octahed.
9	.....	insoluble	.....	sol. a., alk. carbonates; insol. alk.	yellow powder
10	*	insoluble	insoluble	sol. a. insol. alk. ....	white crystals.
11	†	soluble	.....	.....	d. brown need.
12	‡	soluble	.....	.....	black leaflets.
13	.....	decomp.	decomp.	soluble acids.....	crystalline....
14	.....	v. soluble	.....	.....	brownish red.
15	red heat	v. soluble	decomp.	soluble NH <sub>4</sub> Cl.....	dark green reg.
16	.....	sol. and dec.	.....	.....	dark needles..
17	.....	insoluble	.....	insol. dil. a. sol. conc. a.	green powder.
18	.....	insoluble	insoluble	sol. HNO <sub>3</sub> , conc. H <sub>2</sub> SO <sub>4</sub>	black octahed.
19	.....	.....	.....	sol. HNO <sub>3</sub> , conc. H <sub>2</sub> SO <sub>4</sub>	olive gr. pow..
20	.....	.....	.....	.....	yellow powder
21	.....	hygroscopic	.....	decomp. by HCl.....	yellow crystals
22	.....	decomposes	.....	soluble dil. acids.....	green monocl.
23	.....	.....	.....	sol. conc. HCl.....	grayish bl. crys.
24	.....	.....	.....	s. sol. HCl; sol. conc. HNO <sub>3</sub>	gray black....
25	.....	soluble	decomp.	soluble alcohol.....	yellow monocl.
26	.....	515°	decomp.	sol. (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> aq., SO <sub>2</sub> aq.	yellow crystals
27	decomp.	soluble	soluble	sol. alcohol, ether.....	yellow crystals
28	118°	200	v. soluble	s. soluble alcohol.....	yellow rhombic
29	.....	insoluble	insoluble	insol. acetic acid.....	yellow rhombic
30	.....	7.415°	decomp.	insoluble alcohol.....	yellow crystals
31	.....	soluble	.....	insoluble alcohol.....	yellow crystals
32	.....	16015.5°	220100°	4 alcohol; sol. H <sub>2</sub> SO <sub>4</sub> ...	yellow crystals
33	.....	s. soluble	.....	sol. al., conc. HCl.....	brown.....
34	.....	s. soluble	soluble	insol. al.; sol. alk., NH <sub>3</sub> aq.	yellow scales..
35	.....	s. soluble	.....	insol. al.; sol. NH <sub>3</sub> aq. ...	brown amorph.
36	.....	insoluble	insoluble	sol. HNO <sub>3</sub> , HF, H <sub>2</sub> SO <sub>4</sub>	light gray crys.

‡ Volatile at red heat.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Vanadium</b>					
1	bromide tri-.....	VBr <sub>3</sub> .....	291.08	.....	oxidizes
2	carbide.....	VC.....	63.2	5.36	.....
3	chloride di-.....	VCl <sub>2</sub> .....	122.10	3.23 <sup>18°</sup>	.....
4	“ tri-.....	VCl <sub>3</sub> .....	157.55	3.00 <sup>18°</sup>	oxidizes
5	“ tetra-.....	VCl <sub>4</sub> .....	193.00	1.8653 <sup>‡</sup>	< - 18°
6	fluoride tri-.....	VF <sub>3</sub> .3H <sub>2</sub> O.....	162.25	.....	3.H <sub>2</sub> O,130
7	oxide di-.....	V <sub>2</sub> O <sub>2</sub> .....	134.40	3.64	burns
8	“ tri-.....	V <sub>2</sub> O <sub>3</sub> .....	150.40	4.72 <sup>16°</sup>	infusible
9	“ tetr-.....	V <sub>2</sub> O <sub>4</sub> .....	166.40	.....	infusible
10	“ pent-.....	V <sub>2</sub> O <sub>5</sub> .....	182.40	3.5 <sup>20°</sup>	658°
11	oxydibromide.....	VOBr <sub>2</sub> .....	227.12	.....	dec. 180°
12	oxytribromide.....	VOBr <sub>3</sub> .....	307.08	2.9325 <sup>14.5°</sup>	130°-136°
13	oxymonochloride..	VOCl.....	102.65	.....	.....
14	didioxymonochlo-	V <sub>2</sub> O <sub>2</sub> Cl.....	169.85	.....	.....
15	oxydichloride. [ride	VOCl <sub>2</sub> .....	138.10	2.88 <sup>13°</sup>	.....
16	oxytrichloride.....	VOCl <sub>3</sub> .....	173.55	1.836 <sup>17.5°</sup>	< - 15°
17	silicide.....	VS <sub>2</sub> .....	108.0	4.42	†
18	“ .....	V <sub>2</sub> Si.....	130.8	.....	†
19	sulphide di-.....	V <sub>2</sub> S <sub>2</sub> .....	166.52	4.2-4.4	oxidizes.
20	“ tri-.....	V <sub>2</sub> S <sub>3</sub> .....	198.55	3.7-4.0	oxidizes
21	“ penta-.....	V <sub>2</sub> S <sub>5</sub> .....	262.70	3.0	oxidizes.
22	sulphate.....	(VO) <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	422.58	.....	.....
23	<b>Xenon</b> .....	Xe.....	128.	{ 63.5 D 4.422 A.	- 140°
24	<b>Ytterbium</b> .....	Yb.....	173.0	.....	.....
25	acetate.....	Yb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub> .2H <sub>2</sub> O..	422.13	2.09	4H <sub>2</sub> O,100°
26	oxalate.....	Yb <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .10H <sub>2</sub> O ..	790.16	2.644	.....
27	oxide.....	Yb <sub>2</sub> O <sub>3</sub> .....	394.00	9.175	infusible
28	“ hydrated.....	Yb <sub>2</sub> O <sub>3</sub> .6H <sub>2</sub> O.....	502.10	.....	.....
29	selenate.....	Yb <sub>2</sub> (SeO <sub>4</sub> ) <sub>3</sub> .8H <sub>2</sub> O ..	919.73	3.49	.....
30	selenite.....	Yb <sub>2</sub> (SeO <sub>3</sub> ) <sub>3</sub> .....	717.60	.....	.....
31	sulphate.....	Yb <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	634.18	3.62	dec. 900°
32	“ .....	Yb <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .8H <sub>2</sub> O....	778.31	3.286 <sup>20.6°</sup>	.....
33	<b>Yttrium</b> .....	Yt.....	89.0	3.80 <sup>15°</sup>	.....
34	bromide.....	YtBr <sub>3</sub> .....	328.88	.....	.....
35	“ .....	YtBr <sub>3</sub> .9H <sub>2</sub> O.....	491.02	.....	.....
36	carbonate.....	Yt <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub> .3H <sub>2</sub> O....	412.05	.....	.....
37	chloride.....	YtCl <sub>3</sub> .....	195.35	.....	.....
38	“ .....	YtCl <sub>3</sub> .6H <sub>2</sub> O.....	303.45	2.575	dec. 100°
39	fluoride.....	2YtF <sub>3</sub> .H <sub>2</sub> O.....	310.02	.....	.....

\* At 100 mm. Decomposes at 180°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a), Alkalies (alk.), etc.	
1		soluble			gray b. amor-
2				sol. $\text{HNO}_3$	[phous
3		soluble	soluble	sol. alcohol, ether	apple gr. hex.
4		soluble		sol. alcohol, ether	pink tablets.
5	154°	soluble		sol. alcohol, ether	red liquid.
6		soluble	v. soluble	insol. ab. alcohol	rhombohedra.
7		insoluble	insoluble	soluble dilute acids	light gray crys.
8		s. soluble	soluble	sol. HF, HCl, hot conc.	black crystals.
9		insoluble		soluble a., alk. [ $\text{H}_2\text{SO}_4$	blue crystals.
10		0.820°		soluble conc. a., alk.	yellow to red
11		soluble			brown [rhomb.
12	*	soluble			red liquid.
13		insoluble		v. soluble $\text{HNO}_3$	brown powder
14		insoluble		soluble $\text{HNO}_3$	yellow cryst.
15		decomp.		soluble dil. $\text{HNO}_3$	grass green tab.
16	127.19°	v. soluble		soluble alcohol	yellow liquid.
17		insoluble	insoluble	insol. al., ether, benzine	metallic prisms
18		insoluble	insoluble	a.; sol. HF [ $\text{HNO}_3$	silvery prisms.
19				sol. hot conc. $\text{H}_2\text{SO}_4$	black plates
20				sol. alk. sulphides, alk.	dark plates
21				sol. alk. sulphides, alk.	black
22		v. soluble	decomp.	soluble alcohol	blue
23	-109.1°				
24					
25		v. soluble	v. soluble		hexag. plates
26		insoluble		s. soluble dilute acids	crystalline
27		insoluble		soluble hot dil. acids	
28		insoluble		v. sol. acids, KOH insol.	gelatinous
29		decomp.	soluble	[ $\text{NH}_3$ aq.	hexag. plates
30		insoluble			
31		4.420°	4.67100°		
32		soluble	s. soluble		prisms
33		sl. decomp.	decomp.	v. sol. dil. a., hot KOH	grayish black
34		v. soluble		sol. al.; insol. ether	
35		v. soluble		sol. al.; insol. ether	tablets
36		insoluble		s. sol. $\text{CO}_2$ aq.; sol.	
37		v. soluble		[ $(\text{NH}_4)_2\text{CO}_3$ aq	plates
38		v. soluble	v. soluble	sol. al.; insol. ether	rhombic prisms
39		insoluble		s. soluble acids	gelatinous

† Melts in electric arc.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Yttrium hydroxide..	Yt(OH) <sub>3</sub> .....	140.02	.....	decomp.
2	iodide.....	YtI <sub>3</sub> .....	469.91	.....	.....
3	nitrate.....	Yt(NO <sub>3</sub> ) <sub>3</sub> .4H <sub>2</sub> O.....	347.18	2.682	.....
4	".....	Yt(NO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O.....	383.22	.....	decomp.
5	oxalate.....	Yt <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	604.14	.....	decomp.
6	oxide.....	Yt <sub>2</sub> O <sub>3</sub> .....	226.00	5.046	.....
7	sulphate.....	Yt <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	466.18	2.612	dec. 1000°
8	".....	Yt <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .8H <sub>2</sub> O.....	610.31	2.558	8H <sub>2</sub> O, 450°
9	Zinc.....	Zn.....	65.4	7.142 <sup>16°</sup>	419°
10	acetate.....	Zn(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .....	183.45	1.84	242°
11	".....	Zn(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O..	237.50	1.72	235°-257°
12	amide.....	Zn(NH <sub>2</sub> ) <sub>2</sub> .....	97.51	.....	dec. r. ht.
13	arsenate.....	Zn <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> .8H <sub>2</sub> O...	618.33	3.309 <sup>15°</sup>	.....
14	bromate.....	Zn(BrO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	429.42	2.566	100°
15	bromide.....	ZnBr <sub>2</sub> .....	225.32	4.219 <sup>9°</sup>	394°
16	carbonate.....	ZnCO <sub>3</sub> .....	125.40	4.42-4.45	CO <sub>2</sub> , 300°
17	chlorate.....	Zn(ClO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	340.40	.....	60°
18	chloride.....	ZnCl <sub>2</sub> .....	136.30	2.91 <sup>9°</sup>	365°
19	cyanide.....	Zn(CN) <sub>2</sub> .....	117.48	.....	decomp.
20	ferrocyanide.....	Zn <sub>2</sub> Fe(CN) <sub>6</sub> .3H <sub>2</sub> O...	396.99	.....	.....
21	fluoride.....	ZnF <sub>2</sub> .....	103.4	4.612 <sup>12°</sup>	734°
22	".....	ZnF <sub>2</sub> .4H <sub>2</sub> O.....	175.46	2.535 <sup>12°</sup>	4H <sub>2</sub> O, 100°
23	hydroxide.....	Zn(OH) <sub>2</sub> .....	99.42	3.053	decomp.
24	iodate.....	Zn(IO <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	451.37	.....	.....
25	iodide.....	ZnI <sub>2</sub> .....	319.34	4.696.....	446°
26	nitrate.....	Zn(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	297.58	2.065 <sup>13°</sup>	36.4°
27	nitride.....	Zn <sub>3</sub> N <sub>2</sub> .....	224.28	.....	.....
28	oxalate.....	ZnC <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O.....	189.07	† 2.582 <sup>17.5°</sup>	.....
29	oxide.....	ZnO.....	81.4	5.78	.....
30	" per-.....	ZnO <sub>2</sub> .....	97.4	.....	.....
31	oxysulphide.....	ZnO.ZnS.....	178.86	.....	.....
32	permanganate.....	ZnMnO <sub>4</sub> .6H <sub>2</sub> O.....	292.50	.....	5H <sub>2</sub> O, 100°
33	phosphate.....	Zn <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	386.20	3.998 <sup>15°</sup>	red heat
34	".....	Zn <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	458.26	2.76-2.85	.....
35	".....	Zn <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .8H <sub>2</sub> O.....	530.32	3.109 <sup>15°</sup>	.....
36	" acid.....	ZnH <sub>4</sub> P <sub>2</sub> O <sub>8</sub> .2H <sub>2</sub> O.....	295.46	.....	.....
37	" pyro-....	Zn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	304.80	.....	.....
38	phosphide.....	Zn <sub>3</sub> P <sub>2</sub> .....	258.2	4.76	.....
39	salicylate.....	Zn(C <sub>7</sub> H <sub>5</sub> O <sub>3</sub> ) <sub>2</sub> .3H <sub>2</sub> O..	393.53	.....	.....
40	sulphate.....	ZnSO <sub>4</sub> .....	161.46	3.6235 <sup>15°</sup>	dec. 400°
41	".....	ZnSO <sub>4</sub> .7H <sub>2</sub> O.....	287.57	1.964	50°

\* Sublimes in vacuo.      † Loses 3H<sub>2</sub>O at 100°.      ‡ Loses 6H<sub>2</sub>O at 200°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		insoluble		insol. alk.; sol. a., $\text{NH}_4\text{Cl}$ .	gelatinous . . . .
2		v. soluble		sol. al.; s. sol. ether.	. . . . .
3		soluble		sol. conc. $\text{HNO}_3$ .	prisms . . . . .
4		v. soluble		v. sol. al., ether.	crystalline . . . .
5		insoluble		s. sol. $\text{HCl}$ .	. . . . .
6		insoluble		sol. a.; insol. alk.	crystalline . . . .
7		1.52	s. soluble	sol. sat. $\text{K}_2\text{SO}_4$ aq.	. . . . .
8		9.3	4.8 <sup>100°</sup>	s. sol. $\text{H}_2\text{SO}_4$ ; insol. al.	monoclinic . . . .
9	918°	insoluble	insoluble	sol. a., alk., $\text{H.C}_2\text{H}_3\text{O}_2$ .	crystalline . . . .
10	*	v. soluble	v. soluble		mono. laminæ.
11	†	v. soluble	v. soluble		. . . . .
12		decomp.		dec. by al.; insol. ether.	amorphous . . . .
13		insoluble		sol. $\text{HNO}_3$ , $\text{H}_3\text{AsO}_4$ , alk.	mono. needles.
14	‡	100	v. soluble		regular . . . . .
15	650°	390°	670 <sup>100°</sup>	v. sol. al., ether, $\text{NH}_3$ aq.	needles . . . . .
16		insoluble	insoluble	sol. a., alk., $\text{NH}_4$ salts.	rhombohedral.
17	decomp.	v. soluble	v. soluble	v. soluble alcohol.	. . . . . [prisms
18	730°	209°	616 <sup>100°</sup>	100 <sup>12.5</sup> al., v. sol. ether.	octahedral or
19		insoluble		insol. al.; sol. alk., $\text{KCN}$	orthorh. prisms
20		insoluble		insol. $\text{HCl}$ ; sol. $\text{NH}_3$ aq.	. . . . .
21		s. soluble	soluble	insol. al.; sol. hot acids.	mono. needles.
22		s. soluble	soluble	sol. $\text{NH}_3$ aq., a., alk.	. . . . .
23		insoluble	insoluble	sol. acids, alkalies.	rhombic prisms
24		0.877	1.32	sol. $\text{HNO}_3$ , $\text{NH}_3$ aq., alk.	. . . . .
25	624°	430°	510 <sup>100°</sup>	sol. a., $(\text{NH}_4)_2\text{CO}_3$ aq.	octahedra . . . .
26	§ 131°	v. soluble	v. soluble	v. soluble alcohol	tetragonal . . . .
27		decomp.			gray . . . . .
28		0.0008 <sup>18°</sup>		sol. acids, alk.	. . . . .
29		0.001		sol. acids alk., $\text{NH}_4\text{Cl}$	yel. hexag. or
30		insoluble		decomp. by acids.	[amorphous
31				soluble $\text{HCl}$ .	yellow . . . . .
32		v. soluble	v. soluble	decomp. al., acids	dark blue crys.
33		insoluble		. . . . . [salts	. . . . .
34		insoluble		v. sol. a., $\text{NH}_3$ aq., $\text{NH}_4$	prisms . . . . .
35		insoluble		soluble alkalies.	rhombic plates
36		decomp.			triclinic . . . . .
37		insoluble		sol. a., alk., $\text{NH}_3$ aq.	. . . . .
38		insoluble		sol. dil. acids.	. . . . .
39		5 <sup>20°</sup>		soluble alcohol.	needles . . . . .
40		43.02°	95.03 <sup>100°</sup>	s. soluble alcohol.	. . . . .
41		115.2°	633.59 <sup>100°</sup>	s. soluble alcohol.	rhomb. prisms
					or monoclinic

§ Loses  $6\text{H}_2\text{O}$  at  $105^\circ$ . ¶ Anhydrous. || Loses  $7\text{H}_2\text{O}$  at  $280^\circ$ ; dec. at  $400^\circ$ .

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Zinc sulphate . . . . .	ZnSO <sub>4</sub> .6H <sub>2</sub> O . . . . .	269.56	2.07	. . . . .
2	sulphide . . . . .	ZnS . . . . .	97.46	3.98	1049°
3	" (blende) . . . . .	ZnS . . . . .	97.46	4.03-4.07	1049°
4	sulphite . . . . .	2ZnSO <sub>3</sub> .5H <sub>2</sub> O . . . . .	381.00	. . . . .	. . . . .
5	Zirconium . . . . .	Zr . . . . .	90.6	4.15	1500°
6	" . . . . .	Zr . . . . .	90.6	5.3	ox. slowly
7	bromide . . . . .	ZrBr <sub>4</sub> . . . . .	410.44	. . . . .	. . . . .
8	carbide . . . . .	ZrC <sub>2</sub> . . . . .	114.60	. . . . .	. . . . .
9	chloride . . . . .	ZrCl <sub>4</sub> . . . . .	232.40	. . . . .	. . . . .
10	fluoride . . . . .	ZrF <sub>4</sub> . . . . .	166.60	. . . . .	. . . . .
11	hydroxide . . . . .	Zr(OH) <sub>4</sub> . . . . .	158.63	3.25	2H <sub>2</sub> O, 550°
12	iodide . . . . .	ZrI <sub>4</sub> . . . . .	598.48	. . . . .	. . . . .
13	nitrate . . . . .	Zr(NO <sub>3</sub> ) <sub>4</sub> .5H <sub>2</sub> O . . . . .	428.24	. . . . .	dec. 100°
14	oxalate . . . . .	Zr(C <sub>2</sub> O <sub>4</sub> ) <sub>2</sub> .2Zr(OH) <sub>4</sub> . . . . .	583.86	. . . . .	decomp.
15	oxide di- . . . . .	ZrO <sub>2</sub> . . . . .	122.60	5	infusible
16	" " . . . . .	ZrO <sub>2</sub> . . . . .	122.60	5.1-5.7	infusible
17	" per- . . . . .	ZrO <sub>3</sub> . . . . .	138.60	. . . . .	. . . . .
18	oxybromide . . . . .	ZrOBr <sub>2</sub> .3H <sub>2</sub> O . . . . .	320.57	. . . . .	. . . . .
19	oxychloride . . . . .	ZrOCl <sub>2</sub> .8H <sub>2</sub> O . . . . .	321.63	. . . . .	. . . . .
20	oxyiodide . . . . .	ZrI(OH) <sub>3</sub> .3H <sub>2</sub> O . . . . .	322.64	. . . . .	. . . . .
21	oxyiodide . . . . .	ZrI <sub>2</sub> O.8H <sub>2</sub> O . . . . .	504.67	. . . . .	decomp.
22	sulphate . . . . .	Zr(SO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O . . . . .	354.78	. . . . .	. . . . .

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	.....	.....	.....	mono. or tetra.
2	.....	insoluble	insoluble	v. sol. a.; insol. $\text{H.C}_2\text{H}_3\text{O}_2$	* .....
3	.....	insoluble	insoluble	soluble acids. . . $[\text{NH}_3\text{aq.}]$	gray crystals. .
4	.....	0.16	decomp.	insol. al.; sol. $\text{H}_2\text{SO}_3$ ,	.....
5	.....	insoluble	insoluble	s. soluble acids, sol. HF.	black amorph.
6	.....	insoluble	insoluble	soluble hot acids, HF. .	gray crystals. .
7	.....	decomposes	.....	.....	crys. powder. .
8	.....	.....	.....	soluble dilute HF. ....	.....
9	400°	soluble	decomposes	soluble alcohol. ....	.....
10	white heat	insoluble	.....	soluble HF. ....	hexagonal. . .
11	.....	0.02	insoluble	sol. a.; insol. alk., al. . .	gelatinous. . .
12	.....	soluble	soluble	sol. a., ether; s. sol. $\text{CS}_2$ .	red br. crystals
13	.....	soluble	decomp.	..... $[\text{insol. NH}_3\text{aq.}]$	.....
14	.....	insoluble	.....	sol. $(\text{NH}_4)_2\text{C}_2\text{O}_4$ , HCl;	.....
15	.....	insoluble	.....	sol. conc. $\text{H}_2\text{SO}_4$ , HF. . .	amorphous. . .
16	.....	insoluble	.....	.....	quad. prisms or
17	.....	.....	.....	insol. cold dil. $\text{H}_2\text{SO}_4$ . . .	..... $[\text{hexag.}]$
18	.....	soluble	.....	.....	needles. ....
19	.....	soluble	decomp.	soluble alcohol. ....	needles. ....
20	.....	v. soluble	.....	.....	amorphous . .
21	.....	v. soluble	v. soluble	v. sol. ether . . . . .	needles. ....
22	.....	soluble	146 <sup>39.5°</sup>	sol. $\text{H}_2\text{SO}_4$ ; insol. al. . . .	crystalline. . .

\* Yellow regular tetrahedral or hexagonal rhombohedral.

# XXVI. — PHYSICAL CONSTANTS

MOLECULAR WEIGHT, SPECIFIC GRAVITY, SOLUBILITY, MELTING

By

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Abietic acid . . . . .	$C_{19}H_{28}O_2$ . . . . .	288.23	.....
2	Acenaphthen. . . . .	$C_{10}H_6(CH_2)_2$ . . . . .	154.08	1.03
3	Acetal. . . . .	$CH_3CH(OC_2H_5)_2$ . . . . .	118.12	0.8314 <sup>2</sup>
4	" (K.). . . . .	$CH_3CH(OC_2H_5)_2$ . . . . .	118.12	0.824 <sup>2</sup>
5	Acet-aldehyde . . . . .	$CH_3CHO$ . . . . .	44.03	0.7876 <sup>16</sup>
6	" (K.). . . . .	$CH_3CHO$ . . . . .	44.03	0.79—0.795
7	aldoxine. . . . .	$CH_3CHNO$ . . . . .	58.07	0.9645 <sup>2</sup>
8	amide. . . . .	$CH_3CONH_2$ . . . . .	59.08	1.559
9	anilid . . . . .	$CH_3CONH.C_6H_5$ . . . . .	135.11	1.2105 <sup>4</sup>
10	Acetic acid. . . . .	$CH_3.CO_2H$ . . . . .	60.03	1.0515 <sup>15</sup>
11	" " (K.). . . . .	$CH_3.CO_2H$ . . . . .	60.03	1.048—1.049
12	" anhydride . . . . .	$(CH_3CO)_2O$ . . . . .	102.05	1.0799 <sup>15</sup>
13	" " (K.). . . . .	$(CH_3CO)_2O$ . . . . .	102.05	1.0775 <sup>2</sup>
14	Aceto-acetic acid . . . . .	$CH_3CO.CH_2CO_2H$ . . . . .	102.05	.....

This table has been compiled by Prof. E. Emmet Reid, of Baylor University, Texas, most of the data having been obtained from the third edition of Beilstein.

The constants given in the lines in which the letter K. follows the name of the compound were determined for the Chemical Annual by C.A.F. Kahlbaum.

The boiling points were determined by him under the following conditions:

1. The distilling flask was of such a size that it was about half filled with the substance being investigated. Whenever possible a metallic vessel was used, on account of the well-known tendency to superheating in glass vessels, especially with low-boiling liquids, such as aldehyde, pentane, acetone, methyl alcohol, etc. Ether, for example, boils in glass vessels as high as 50°. Whenever glass vessels were used a piece of asbestos paper having a circular hole of  $\frac{1}{8}$ — $\frac{1}{4}$  the diameter of the distilling flask, according to the boiling point of the substance investigated, was placed under the flask.

2. Heat was supplied by a pointed non-luminous flame without wire gauze. The size of the flame was regulated at the beginning of the experiment so that two drops of the distillate were produced per second. This rate of distillation was maintained during the entire experiment. The distillation was discontinued when 90 to 93% of the liquid had been distilled off. The temperature was observed as soon as the first drops of the distillate fell from the condenser.

# OF ORGANIC COMPOUNDS

## AND BOILING POINTS, CRYSTALLINE FORM AND COLOR.

E. EMMET REID, PH.D.

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insoluble	v. soluble	v. soluble	153-4°	.....	leaf. or monoc.
2	.....	v. soluble	.....	95°	277.5°	needles/alc.
3	5.2 <sup>25</sup>	∞	∞	.....	102.91°	.....
4	5.5	∞	∞	.....	102-4°	.....
5	∞	∞	∞	-120.7°	20.8°	.....
6	∞	∞	∞	abt. -120°	20.5-24°	.....
7	∞	∞	∞	47° or 13°	114-5°	.....
8	v. soluble	v. soluble	v. soluble	82°	222° C.	hexagonal...
9	0.53 <sup>6</sup>	soluble	soluble	112°	303.8°	leaflets/w....
10	∞	∞	∞	16.7°	118.1° C.	.....
11	∞	∞	∞	.....	117-8°	colorless.....
12	decomp.	.....	.....	.....	137.9 C.	.....
13	sol. dec.	∞	∞	.....	137-40°	colorless.....
14	∞	.....	∞	.....	decomp.	.....

3. All boiling points refer to an atmospheric pressure of 760 mm. When the atmospheric pressure was abnormal, thermometers with movable scales were employed, water (B. P. 100°), aniline (B. P. 184°) and quinoline (B. P. 238°) being used as standard substances.

4. The boiling points given are the limits between which the greater part of the liquid distilled.

### ABBREVIATIONS

The following abbreviations have been used in the table: abs. = absolute; acet. = acetone; al. = alcohol; amor. = amorphous; anhy. = anhydrous; at. = atmosphere; bz. = benzene; chlo. = chloroform; cryst. = crystalline; dec. = decomposes; et. = ether; exp. = explodes; hexag. = hexagonal; insol. = insoluble; leaf. = leaflets; lig. = ligroene; acet. = acetone; mod. = moderately; monocl. = monoclinic; need. = needles; pris. = prisms; quad. = quadratic; s. = slightly; sol. = soluble; subl. = sublimes; tab. = tablets; triclinic w. indicates that crystals separating from a water solution are triclinic in form; v. = very; w. = water; yel. = yellow; 265°<sup>100</sup> indicates that the substance boils at 265° under a pressure of 100 mm.; a small figure to the right of a number denoting solubility signifies the temperature; ∞ = infinitely soluble or soluble in all proportions; > = greater than; < = less than.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Aceto-acetic ether . . . . .	$\text{CH}_3\text{CO}.\text{CH}_2.\text{CO}_2\text{C}_2\text{H}_5$ . . . . .	130.08	1.0282 <sup>12</sup>
2	“ “ (K.) . . . . .	$\text{CH}_3\text{CO}.\text{CH}_2.\text{CO}_2\text{C}_2\text{H}_5$ . . . . .	130.08	1.024 <sup>11</sup>
3	Acetol . . . . .	$\text{CH}_3\text{CO}.\text{CH}_2.\text{OH}$ . . . . .	74.05	.....
4	Acetone . . . . .	$\text{CH}_3\text{COCH}_3$ . . . . .	58.05	0.7970 <sup>12</sup>
5	“ (K.) . . . . .	$\text{CH}_3\text{COCH}_3$ . . . . .	58.05	0.788–0.790
6	Aceto-phenone . . . . .	$\text{CH}_3\text{CO}.\text{C}_6\text{H}_5$ . . . . .	120.06	1.032 <sup>15</sup>
7	“ (K.) . . . . .	$\text{CH}_3\text{CO}.\text{C}_6\text{H}_5$ . . . . .	120.06	1.028 <sup>11</sup>
8	Acetoxine . . . . .	$(\text{CH}_3)_2\text{C}:\text{NOH}$ . . . . .	73.10	0.8868 <sup>12</sup>
9	Acet-o-toluid . . . . .	$\text{CH}_3\text{CONHC}_6\text{H}_4.\text{CH}_3$ . . . . .	149.13	.....
10	Acetyl-acetone . . . . .	$\text{CH}_3\text{COCH}_2\text{COCH}_3$ . . . . .	100.06	0.987 <sup>15</sup>
11	bromide . . . . .	$\text{CH}_3\text{COBr}$ . . . . .	122.99	.....
12	chloride . . . . .	$\text{CH}_3\text{COCl}$ . . . . .	78.48	1.1051 <sup>12</sup>
13	Acetylene . . . . .	$\text{CH}:\text{CH}$ . . . . .	26.02	.91 (A) .460–7
14	dicarbonic acid . . . . .	$\text{CO}_2.\text{H}.\text{C}:\text{C}.\text{CO}_2\text{H} + 2\text{H}_2\text{O}$ . . . . .	150.05	.....
15	Acetyl fluoride . . . . .	$\text{CH}_3\text{COF}$ . . . . .	62.03	1.0369 <sup>11</sup>
16	iodide . . . . .	$\text{CH}_3\text{COI}$ . . . . .	170.00	1.98 <sup>17</sup>
17	peroxide . . . . .	$(\text{CH}_3\text{CO})_2\text{O}_2$ . . . . .	118.05	.....
18	propyl alcohol . . . . .	$\text{CH}_3\text{CO}.\text{(CH}_2)_2\text{CH}_2\text{OH}$ . . . . .	102.08	1.0159 <sup>9</sup>
19	rosaniline . . . . .	$\text{C}_{20}\text{H}_{18}(\text{C}_2\text{H}_3\text{O})\text{N}_3$ . . . . .	343.29	.....
20	urea . . . . .	$\text{NH}_2.\text{CO}.\text{NHC}_2\text{H}_5\text{O}$ . . . . .	102.13	.....
21	Aconic acid . . . . .	$\text{C}_8\text{H}_4\text{O}_4$ . . . . .	128.03	.....
22	Aconitic acid . . . . .	$\text{C}_8\text{H}_6\text{O}_6$ . . . . .	174.05	.....
23	Acridine . . . . .	$\text{C}_6\text{H}_4 < \overset{\text{CH}}{\text{N}} > \text{C}_6\text{H}_4$ . . . . .	179.11	.....
24	Acrolein . . . . .	$\text{CH}_2:\text{CH}.\text{CHO}$ . . . . .	56.03	0.84
25	Acrylic acid . . . . .	$\text{CH}_2:\text{CH}.\text{CO}_2\text{H}$ . . . . .	72.03	1.0621 <sup>12</sup>
26	Adipic acid . . . . .	$\text{CO}_2\text{H}.\text{(CH}_2)_4.\text{CO}_2\text{H}$ . . . . .	146.08	.....
27	Aldehyde ammonia . . . . .	$\text{CH}_3.\text{CH}(\text{OH}).\text{NH}_2$ . . . . .	61.10	.....
28	benzoic acid (o.) . . . . .	$\text{CO}_2\text{H}.\text{C}_6\text{H}_4.\text{CHO}$ . . . . .	150.05	1.404 . . . . .
29	“ “ (m.) . . . . .	$\text{CO}_2\text{H}.\text{C}_6\text{H}_4.\text{CHO}$ . . . . .	150.05	.....
30	“ “ (p.) . . . . .	$\text{CO}_2\text{H}.\text{C}_6\text{H}_4.\text{CHO}$ . . . . .	150.05	.....
31	Aldehydine . . . . .	$2,5\text{CH}_3.\text{C}_5\text{H}_3\text{N}.\text{C}_2\text{H}_5$ . . . . .	121.13	0.9184 <sup>23</sup>
32	Aldol . . . . .	$\text{CH}_3.\text{CH}(\text{OH}).\text{CH}_2\text{COH}$ . . . . .	88.06	1.1094 <sup>16</sup>
33	Alizarine . . . . .	$\text{C}_6\text{H}_4(\text{CO})_2\text{C}_6\text{H}_2(\text{OH})_2$ . . . . .	240.06	.....
34	β-carbonic acid . . . . .	$\text{CO}_2\text{H}.\text{C}_6\text{H}_3(\text{CO})_2\text{C}_6\text{H}_2$ . . . . .	284.06	.....
35	Allantoin . . . . .	$\text{C}_4\text{H}_6\text{N}_4\text{O}_3$ . . . . . $[(\text{OH})_2]$	158.21	.....
36	Alloxan . . . . .	$\text{C}_4\text{H}_2\text{N}_2\text{O}_4 + 1 \text{ or } 4\text{H}_2\text{O}$ . . . . .	142.10	.....
37	Allyl acetate . . . . .	$\text{CH}_3.\text{CO}_2.\text{C}_3\text{H}_5$ . . . . .	100.06	0.9376 <sup>9</sup>
38	acetic acid . . . . .	$\text{CH}_3:\text{CH}.\text{(CH}_2)_2\text{CO}_2\text{H}$ . . . . .	100.06	0.9842 <sup>15</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	sl. soluble	.....	.....	< -80°	181°	.....
2	s. soluble	∞	∞	.....	177-81°	becomes yel.
3	∞	∞	∞	.....	147° dec.	.....
4	∞	∞	∞	-94.9°	56.53° C.	.....
5	∞	∞	∞	-95°	56-7°	.....
6	insoluble	.....	.....	20.5°	202° C.	leaflets
7	v. s. sol.	soluble	∞	17-19°	199-202°	usually yel. . .
8	v. soluble	v. soluble	v. soluble	60°	135°	prisms. . . . .
9	0.86 <sup>19</sup>	.....	.....	110°	296°	monoclinic. . .
10	12.5	∞	∞	.....	137°	.....
11	decomp.	decomp.	soluble	.....	81°	.....
12	decomp.	decomp.	soluble	.....	50.9 C.	.....
13	100 c.c. <sup>18</sup>	600 c.c. <sup>18</sup>	.....	.....	-85°	.....
14	v. soluble	v. soluble	v. soluble	178-9°	.....	crystalline. . .
15	∞ chlo.	∞	∞	.....	20.8° <sup>770</sup>	.....
16	decomp.	decomp.	soluble	.....	108°	brown. . . . .
17	sl. soluble	.....	.....	30°	explodes	plates. . . . .
18	∞	v. soluble	v. soluble	.....	208-9°	.....
19	insoluble	soluble	insol.; sol. CHCl <sub>3</sub> , CS <sub>2</sub>	.....	.....	red. . . . .
20	v. sol. hot	1 <sup>20</sup> 10 <sup>77</sup> . .	.....	212°	.....	.....
21	17.6 <sup>15</sup>	.....	.....	164°	dec.	triclinic/w. . .
22	18	50 <sup>12</sup>	v. soluble	191° dec.	.....	leaflets. . . . .
23	s. soluble	v. soluble	v. soluble	107°	>360° sub.	leaf. or need. .
24	40	soluble	soluble	.....	52.4°	.....
25	∞	.....	.....	8°	140°	.....
26	1.44 <sup>15</sup>	v. soluble	0.605 <sup>15</sup>	153° C.	265° <sup>100</sup>	triclinic. . . . .
27	v. soluble	v. soluble	s. soluble	70-80°	100°	rhomboh. . . . .
28	v. soluble	v. soluble	v. soluble	97.2°	dec.	moncl. leaf./w
29	.....	.....	.....	164-6°	.....	sm. needles. .
30	sol. hot.	.....	s. soluble	285°	sub.	needles/w. . . .
31	insol.	v. soluble	v. soluble	.....	173-4°	.....
32	∞	∞	soluble	.....	90-105° <sup>20</sup>	thick syrup. .
33	0.034 <sup>100</sup>	v. soluble *	v. soluble	289-90°	430°	red triclinic. .
34	s. soluble	mod. sol.	s. soluble	305°	sub.	{ red need. or { powd.
35	0.6 <sup>20</sup> v.s. h.	v. v. s. sol.	insol. .	.....	dec.	monocl. pris. .
36	v. soluble	soluble	.....	dec.	170°(?)	triclinic/w. . .
37	s. soluble	∞	∞	.....	103-4° <sup>734</sup>	.....
38	s. soluble	v. soluble	v. soluble	< -18°	188° C.	.....

\* Soluble CS<sub>2</sub>, KOH.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Allyl acetone . . . . .	$\text{CH}_3\text{CO.CH}_2\text{C}_3\text{H}_5$ . . . . .	98.08	0.834 <sup>27</sup>
2	alcohol . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{OH}$ . . . . .	58.05	0.871 <sup>0</sup>
3	“ (K.) . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{OH}$ . . . . .	58.05	0.854-0.857 <sup>††</sup>
4	amine . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{NH}_2$ . . . . .	57.10	0.7688 <sup>15</sup>
5	aniline . . . . .	$\text{C}_6\text{H}_5\text{NH.C}_3\text{H}_5$ . . . . .	133.13	0.982 <sup>25</sup>
6	benzene . . . . .	$\text{C}_6\text{H}_5\text{CH:CH.CH}_3$ . . . . .	118.08	0.918 <sup>††</sup>
7	benzoate . . . . .	$\text{C}_6\text{H}_5\text{CO}_2\text{C}_3\text{H}_5$ . . . . .	162.08	.....
8	bromide . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{Br}$ . . . . .	121.00	1.436 <sup>15</sup>
9	butyrate . . . . .	$\text{CH}_3(\text{CH}_2)_2\text{CO}_2\text{C}_3\text{H}_5$ . . . . .	128.10	.....
10	chloride . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{Cl}$ . . . . .	76.49	0.9371 <sup>19</sup>
11	cyanide . . . . .	$\text{CH}_3\text{CH:CHCN}$ . . . . .	67.08	0.8351 <sup>15</sup>
12	ether . . . . .	$(\text{CH}_2\text{:CH.CH}_2)_2\text{O}$ . . . . .	98.08	0.8046 <sup>18</sup>
13	formate . . . . .	$\text{HCO}_2\text{C}_3\text{H}_5$ . . . . .	86.05	0.9322 <sup>17.5</sup>
14	iodide . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{I}$ . . . . .	168.01	1.8293 <sup>23</sup>
15	isoamyl ether . . . . .	$\text{C}_3\text{H}_5\text{O.C}_5\text{H}_{11}$ . . . . .	128.13	.....
16	isobutyrate . . . . .	$\text{C}_4\text{H}_7\text{O}_2\text{C}_3\text{H}_5$ . . . . .	128.10	.....
17	isocyanide . . . . .	$\text{C}_3\text{H}_5\text{NC}$ . . . . .	67.08	0.794 <sup>17</sup>
18	isovalerate . . . . .	$\text{C}_5\text{H}_9\text{O}_2\text{C}_3\text{H}_5$ . . . . .	142.12	.....
19	mercaptan . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{SH}$ . . . . .	74.11	.....
20	mustard oil . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{NCS}$ . . . . .	99.14	1.0173 <sup>10</sup>
21	oxalate . . . . .	$\text{C}_2\text{O}_4(\text{C}_3\text{H}_5)_2$ . . . . .	170.08	1.055 <sup>15</sup>
22	phenyl ether . . . . .	$\text{C}_6\text{H}_5\text{OC}_3\text{H}_5$ . . . . .	134.08	.....
23	phenyl urea . . . . .	$\text{C}_3\text{H}_5\text{HN.CO.NHC}_6\text{H}_5$ . . . . .	176.18	.....
24	pyridine . . . . .	$\text{C}_3\text{H}_5\text{C}_5\text{H}_4\text{N}$ . . . . .	119.11	0.9595 <sup>0</sup>
25	sulphide . . . . .	$(\text{CH}_2\text{:CH.CH}_2)_2\text{S}$ . . . . .	114.14	0.8877 <sup>17</sup>
26	sulphocyanide . . . . .	$\text{C}_3\text{H}_5\text{SCN}$ . . . . .	99.14	1.056 <sup>15</sup>
27	Allylene . . . . .	$\text{CH}_3\text{C:CH}$ . . . . .	40.03	.....
28	oxide . . . . .	$\text{CH}_3\text{(C:CH)O}$ . . . . .	56.03	.....
29	Aluminum ethyl . . . . .	$\text{Al}(\text{C}_2\text{H}_5)_3$ . . . . .	114.22	.....
30	methyl . . . . .	$\text{Al}(\text{CH}_3)_3$ . . . . .	72.17	.....
31	Amarin . . . . .	$\text{C}_{21}\text{H}_{18}\text{N}_2$ . . . . .	298.23	.....
32	Amaron . . . . .	$\text{C}_{28}\text{H}_{20}\text{N}_2$ . . . . .	384.24	.....
33	Ammelid . . . . .	$\text{C}_6\text{H}_9\text{N}_9\text{O}_3$ . . . . .	255.43	.....
34	Ammelin . . . . .	$\text{C}_3\text{H}_5\text{N}_5\text{O}$ . . . . .	127.24	.....
35	Amino-acetone . . . . .	$\text{NH}_2\text{CH}_2\text{CO.CH}_3$ . . . . .	73.10	.....
36	anthraquinone . . . . .	$\text{C}_{14}\text{H}_9\text{O}_2\text{NH}_2$ . . . . .	223.07	.....
37	azo-benzene (p.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{N}_2\text{C}_6\text{H}_5$ . . . . .	197.21	.....
38	azo-napthaline . . . . .	$\text{C}_{10}\text{H}_7\text{N}_2\text{C}_{10}\text{H}_6\text{NH}_2$ . . . . .	297.24	.....
39	benzaldehyde (o.) . . . . .	$\text{C}_6\text{H}_4\text{CHO.NH}_2$ . . . . .	121.10	.....
40	benzamide (o.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{CONH}_2$ . . . . .	136.14	.....
41	benzamide (m.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{CONH}_2$ . . . . .	136.14	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol....	.....	.....	.....	128-30°	.....
2	∞	∞	∞	.....	96.6°C.	.....
3	∞	∞	∞	.....	95-7°	.....
4	∞	soluble	.....	.....	56.5° <sup>758</sup>	.....
5	v. s. sol.	soluble	.....	.....	208-9°	yellow oil....
6	.....	soluble	.....	.....	174-5°	.....
7	.....	.....	.....	.....	230° <sup>768</sup>	.....
8	insol.	.....	.....	.....	70-1°	.....
9	.....	.....	.....	.....	142°	.....
10	insol.	soluble	.....	.....	46°	.....
11	.....	soluble	.....	.....	119°C. ...	.....
12	s. soluble	∞	∞	.....	94.3°	.....
13	.....	soluble	.....	.....	83.6°C. <sup>768</sup>	.....
14	insol.	.....	.....	.....	102.5-2.8c	.....
15	.....	.....	.....	.....	120°	.....
16	.....	.....	.....	.....	133.5°	.....
17	s. soluble	soluble	.....	.....	96-106°	.....
18	.....	.....	.....	.....	154-5°	.....
19	.....	.....	.....	.....	90°	.....
20	v. s. soluble	v. soluble	v. soluble	.....	150.7°	.....
21	insol.	soluble	.....	.....	217°	.....
22	insol.	.....	.....	.....	192-5°	.....
23	.....	.....	.....	96-7°	.....	needles .....
24	.....	.....	.....	.....	189-90°	.....
25	s. soluble	∞	∞	.....	138.6° <sup>758</sup>	.....
26	insol.	.....	.....	.....	161°	.....
27	.....	.....	3000 c.c.	.....	*	.....
28	s. soluble	.....	.....	.....	62-3°	.....
29	dec.	.....	.....	.....	194°	.....
30	.....	.....	.....	0°	130°	.....
31	insol.	v. soluble	v. soluble	100°	.....	prisms .....
32	insol.	s. sol. hot	s. soluble	245-6°	subl.	sm. need./ace
33	insol.	insol.	sol. acid	.....	.....	powder.....
34	0.02	insol.	sol. KOH	dec.	.....	needles.....
35	v. soluble	soluble	.....	188-9° dec.	.....	need.or tab/al
36	v. sol. chlo.†	s. soluble	v. sol. acet.	256°	subl.	red powder..
37	v. s. sol. hot	v. sol. hot	v. soluble	127.4°	>360°	monoclinic...
38	.....	mod. sol.	mod. sol.	173-5°	dist.	red needles ..
39	s. soluble	v. v. sol.	v. v. sol.	39-40°	dec.	leaflets
40	mod. sol.	v. sol.	s. soluble	108°	.....	leaflets/chlo..
41	s. soluble	soluble	soluble	79°	abt. 300°	yel. moncl.

\* Liquefies at 3 to 4 atmosphere pressure.

† Very soluble benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Amino-</b>			
1	benzamide (p.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{CONH}_2$ . . . . .	136.14	.....
2	benzene-sulphonic acid (o.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{SO}_3\text{H} + \frac{1}{2}\text{H}_2\text{O}$ . . . . .	182.17	.....
3	benzene-sulphonic acid (m.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{SO}_3\text{H} + 1\frac{1}{2}\text{H}_2\text{O}$ . . . . .	200.19	.....
4	benzoic acid (o.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	137.10	.....
5	" " (m.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	137.10	1.5104 <sup>4</sup>
6	" " (p.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	137.10	.....
7	cinnamic acid (o.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{C}_2\text{H}_2\text{CO}_2\text{H}$ . . . . .	163.11	.....
8	" " (m.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{C}_2\text{H}_2\text{CO}_2\text{H}$ . . . . .	163.11	.....
9	" " (p.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{C}_2\text{H}_2\text{CO}_2\text{H}$ . . . . .	163.11	.....
10	diphenyl (o.) . . . . .	$\text{C}_6\text{H}_5.\text{C}_6\text{H}_4.\text{NH}_2$ . . . . .	169.13	.....
11	" (p.) . . . . .	$\text{C}_6\text{H}_5.\text{C}_6\text{H}_4.\text{NH}_2$ . . . . .	169.13	.....
12	ethyl-benzene (o.) . . . . .	$\text{C}_2\text{H}_5.\text{C}_6\text{H}_4.\text{NH}_2$ . . . . .	121.13	0.983 <sup>22</sup>
13	" (m.) . . . . .	$\text{C}_2\text{H}_5.\text{C}_6\text{H}_4.\text{NH}_2$ . . . . .	121.13	0.9896 <sup>0</sup>
14	" (p.) . . . . .	$\text{C}_2\text{H}_5.\text{C}_6\text{H}_4.\text{NH}_2$ . . . . .	121.13	0.975 <sup>22</sup>
15	$\beta$ -naphthol (1) . . . . .	$\text{NH}_2.\text{C}_{10}\text{H}_6.\text{OH}$ . . . . .	159.11	.....
16	phenol (o.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{OH}$ . . . . .	109.10	.....
17	" (m.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{OH}$ . . . . .	109.10	.....
18	" (p.) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_4.\text{OH}$ . . . . .	109.10	.....
19	quinoline (2) . . . . .	$\text{C}_9\text{H}_6\text{N}.\text{NH}_2$ . . . . .	144.14	.....
20	" (4) . . . . .	$\text{C}_9\text{H}_6\text{N}.\text{NH}_2 + \text{H}_2\text{O}$ . . . . .	162.16	.....
21	salicylic acid (5) . . . . .	$\text{NH}_2.\text{C}_6\text{H}_3(\text{OH})\text{CO}_2\text{H}$ . . . . .	153.10	.....
22	thiophene . . . . .	$\text{NH}_2.\text{C}_4\text{H}_3\text{S}$ . . . . .	99.14	.....
23	triphenyl-methane . . . . .	$(\text{C}_6\text{H}_5)_2\text{CH}.\text{C}_6\text{H}_4.\text{NH}_2$ . . . . .	259.18	.....
24	Amygdaline . . . . .	$\text{C}_{20}\text{H}_{27}\text{NO}_{11} + 3\text{H}_2\text{O}$ . . . . .	511.31	.....
25	Amygdalinic acid . . . . .	$\text{C}_{20}\text{H}_{23}\text{O}_{13}$ . . . . .	476.22	.....
26	Amyl acetate . . . . .	$\text{CH}_3\text{CO}_2.\text{C}_5\text{H}_{11}$ . . . . .	130.12	0.8792 <sup>20</sup>
27	alcohol (n.) . . . . .	$\text{CH}_3(\text{CH}_2)_3.\text{CH}_2\text{OH}$ . . . . .	88.10	0.8168 <sup>20</sup>
28	" (act.) . . . . .	$\text{CH}_3(\text{C}_2\text{H}_5)\text{CH}.\text{CH}_2\text{OH}$ . . . . .	88.10	0.8330 <sup>2</sup>
29	" (sec.) . . . . .	$\text{C}_3\text{H}_7.\text{CH}(\text{OH}).\text{CH}_3$ . . . . .	88.10	0.8239 <sup>0</sup>
30	" (tert.) . . . . .	$(\text{CH}_3)_2.\text{C}(\text{OH}).\text{C}_2\text{H}_5$ . . . . .	88.10	0.8144 <sup>15</sup>
31	amine . . . . .	$\text{CH}_3(\text{CH}_2)_4.\text{NH}_2$ . . . . .	87.15	0.7503 <sup>18</sup>
32	benzene . . . . .	$\text{C}_6\text{H}_5.\text{C}_5\text{H}_{11}$ . . . . .	148.13	0.8602 <sup>22</sup>
33	bromide . . . . .	$\text{CH}_3(\text{CH}_2)_3\text{CH}_2\text{Br}$ . . . . .	151.05	1.2234 <sup>20</sup>
34	chloride . . . . .	$\text{CH}_3(\text{CH}_2)_3\text{CH}_2\text{Cl}$ . . . . .	106.54	0.8834 <sup>20</sup>
35	cyanide . . . . .	$(\text{C}_2\text{H}_5)_2\text{CHCN}$ . . . . .	97.13	0.866 <sup>20</sup>
36	ether (K.) . . . . .	$(\text{C}_5\text{H}_{11})_2\text{O}$ . . . . .	158.18	0.7745 <sup>14</sup>
37	formate . . . . .	$\text{CHO}_2\text{C}_5\text{H}_{11}$ . . . . .	116.10	0.9018 <sup>0</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	s. soluble	.....	.....	182.9°	.....	bright yellow
2	1.66 <sup>21</sup>	soluble	.....	.....	.....	quad. prisms.
3	1.5 <sup>15</sup>	soluble	.....	.....	.....	triclinic pris..
4	sol. hot	v. soluble	.....	144-5°	subl.	trimet. leaflets
5	s. soluble	v. soluble	v. soluble	174°	.....	cryst. warts .
6	mod. sol.	soluble	soluble	186-7°	.....	red yel. cryst.
7	v. s. sol.	mod. sol.	mod. sol.	158-9° dec	.....	yellow need. .
8	s. soluble	soluble	soluble	180-1°	.....	lg. yel. need..
9	s. soluble	v. soluble	v. soluble	175-6° dec	.....	fine yel. need.
10	insol.	soluble	.....	49°	.....	leaflets. ....
11	s. soluble	v. soluble	v. soluble	53°	322°	glit. leaf/al. .
12	.....	.....	.....	< -10°	215-6° C.	.....
13	.....	.....	.....	.....	214-5°	.....
14	.....	.....	.....	-5°	216-6.5° C	glit. leaflets..
15	v. s. sol. hot	.....	sol. fluoresc	.....	.....	.....
16	1.7°	4.5°	v. soluble	170°	subl.	rhombic.
17	sol. hot	soluble	soluble	122-3°	.....	pris. toluene
18	1.10	4.5°	.....	184° dec.	sup. pt.	leaflets
19	v. v. s. sol.	v. soluble	v. soluble	129° C.	.....	lrg. leaf./w...
20	soluble	soluble	sol. acet. {	69-70° (anh. 154°)	.....	fine need./w.
21	insol.	insol.	.....	dec.	dec.	glit. needles..
22	v. soluble	v. soluble	insol.	.....	.....	oil. ....
23	sol. lig.	sol. bz.	soluble	83-4°	.....	pris. lg. or et.
24	8 <sup>10</sup> , ∞ <sup>100</sup>	0.11 <sup>10</sup> , 9.78	insol.	200°	.....	tetra. pris./w.
25	deliq.	insol.	insol.	.....	.....	cryst. mass. .
26	s. soluble	∞	∞	.....	148°	.....
27	soluble	∞	∞	.....	137.8°	.....
28	.....	.....	.....	.....	128.7°	.....
29	16.	.....	.....	.....	118.5° <sup>753</sup>	.....
30	s. soluble	soluble	.....	-12°	101.8°	.....
31	.....	soluble	.....	.....	103°	.....
32	.....	soluble	.....	.....	201° <sup>743</sup>	.....
33	.....	soluble	.....	.....	128.7° <sup>739</sup>	.....
34	.....	soluble	.....	.....	106.6° <sup>740</sup>	.....
35	s. soluble	∞	∞	.....	144-6°	.....
36	insoluble	∞	∞	.....	169-72°	yellowish
37	s. soluble	.....	.....	.....	130.4°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Amyl</b>			
1	iodide.....	$\text{CH}_3(\text{CH}_2)_3\text{CH}_2\text{I}$ ....	198.06	1.5174 <sup>20</sup>
2	isobutyrate.....	$\text{C}_4\text{H}_7\text{O}_2\text{C}_5\text{H}_{11}$ .....	158.15	0.8592 <sup>13</sup>
3	valeriate.....	$\text{C}_4\text{H}_9\text{CO}_2\text{C}_5\text{H}_{11}$ .....	172.16	0.8812 <sup>0</sup>
4	Amylene n.....	$\text{CH}_3(\text{CH}_2)_2\text{CH}:\text{CH}_2$ .....	70.08	.....
5	Amylene.....	$\text{C}_2\text{H}_5\text{CH}:\text{CH}\cdot\text{CH}_3$ .....	70.08	.....
6	Amylene (K.) .....	$(\text{CH}_3)_2\text{C}:\text{CHCH}_3$ ....	70.08	0.666 <sup>††</sup>
7	Anethol.....	$\text{CH}_3\text{CH}:\text{CH}\cdot\text{C}_6\text{H}_4\cdot\text{O}\cdot\text{CH}_3$	148.10	0.9855 <sup>22</sup>
8	Angelic acid.....	$\text{C}_4\text{H}_7\text{CO}_2\text{H}$ .....	100.06	.....
9	Aniline.....	$\text{C}_6\text{H}_5\text{NH}_2$ .....	93.10	1.0276 <sup>12</sup>
10	" (K.) .....	$\text{C}_6\text{H}_5\text{NH}_2$ .....	93.10	1.0214 <sup>††</sup>
11	Anisalcohol.....	$p\cdot\text{CH}_3\text{O}\cdot\text{C}_6\text{H}_4\cdot\text{CH}_2\text{OH}$ ....	138.08	1.1093 <sup>26</sup>
12	Anisic acid.....	$p\cdot\text{CH}_3\text{O}\cdot\text{C}_6\text{H}_4\text{CO}_2\text{H}$ .....	152.06	1.364 <sup>4</sup> —1.385
13	aldehyde.....	$p\cdot\text{CH}_3\text{O}\cdot\text{C}_6\text{H}_4\text{CHO}$ .....	136.06	1.1228 <sup>18</sup>
14	" (K.) .....	$p\cdot\text{CH}_3\text{O}\cdot\text{C}_6\text{H}_4\cdot\text{CHO}$ .....	136.06	1.120—1.122 <sup>††</sup>
15	Anisol.....	$\text{C}_6\text{H}_5\text{O}\cdot\text{CH}_3$ .....	108.06	0.9878 <sup>22</sup>
16	" (K.) .....	$\text{C}_6\text{H}_5\text{O}\cdot\text{CH}_3$ .....	108.06	0.9925 <sup>††</sup>
17	Anthracene.....	$\text{C}_6\text{H}_4:(\text{CH})_2:\text{C}_6\text{H}_4$ .....	178.08	1.147
18	carbonic acid (α) .....	$\text{C}_6\text{H}_4:(\text{CH}_2)_2:\text{C}_6\text{H}_3\text{CO}_2\text{H}$	222.08	.....
19	" " (β) .....	$\text{C}_6\text{H}_4:(\text{CH}_2)_2:\text{C}_6\text{H}_3\text{CO}_2\text{H}$	222.08	.....
20	" " (γ.) .....	$\text{C}_6\text{H}_4:(\text{CH}_2)_2:\text{C}_6\text{H}_3\text{CO}_2\text{H}$	222.08	.....
21	Anthramine.....	$\text{C}_6\text{H}_4:(\text{CH})_2:\text{C}_6\text{H}_3\text{NH}_2$ ...	193.13	.....
22	Anthranil.....	$\text{C}_6\text{H}_4:\text{NH}\cdot\text{CO}$ .....	119.08	.....
23	Anthrapurpurin.....	$\text{C}_{14}\text{H}_5\text{O}_2(\text{OH})_3$ .....	256.06	.....
24	Anthraquinoline.....	$\text{C}_{17}\text{H}_{11}\text{N}$ .....	229.13	.....
25	Anthraquinone.....	$\text{C}_6\text{H}_4:(\text{CO})_2:\text{C}_6\text{H}_4$ .....	208.06	1.419—1.438
26	carbonic acid (β) .....	$\text{C}_6\text{H}_4:(\text{CO})_2:\text{C}_6\text{H}_3\text{CO}_2\text{H}$ ..	252.06	.....
27	dicarbonic acid (1, 3) .	$\text{C}_{16}\text{H}_8\text{O}_5$ .....	280.06	.....
28	Anthrol (m.).....	$\text{C}_6\text{H}_4(\text{CH})_2\text{C}_6\text{H}_3\text{OH}$ .....	194.08	.....
29	Antimony pentamethyl..	$\text{Sb}(\text{CH}_3)_5$ .....	195.32	.....
30	triethyl.....	$\text{Sb}(\text{C}_2\text{H}_5)_3$ .....	207.32	1.3244 <sup>16</sup>
31	trimethyl.....	$\text{Sb}(\text{CH}_3)_3$ .....	165.27	1.523 <sup>15</sup>
32	Antipyrene.....	$\text{C}_{11}\text{H}_{12}\text{N}_2\text{O}$ .....	188.18	.....
33	Apple oil see Amyl. vale- riate			
34	Arabin.....	$\text{C}_{10}\text{H}_{18}\text{O}_9$ .....	282.15	.....
35	Arabinose (d.).....	$\text{OHCH}_2(\text{CHOH})_3\text{CHO}$ ...	150.08	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	soluble	.....	.....	155.4° <sup>739</sup>	.....
2	.....	.....	.....	.....	153-5°	.....
3	s. soluble	∞	∞	.....	203.7°	.....
4	v. s. sol.	soluble	∞	.....	37-42°	.....
5	.....	.....	.....	.....	39-40°	.....
6	.....	.....	.....	.....	36° <sup>741</sup>	.....
7	v. s. sol.	∞	∞	21.6°	233° C.	leaflets
8	s. soluble	soluble	v. soluble	45.5°	185°	monoclinic
9	3	v. soluble	v. soluble	-8°	183.7° C.	.....
10	3.22 <sup>12-5</sup>	soluble	∞	-6-5°	183-4°	becomes br'n
11	insol.	.....	.....	45°	258.8°	needles
12	0.04 <sup>18</sup>	v. soluble	soluble	184.2° C.	275-80°	moncl. prisms
13	s. soluble	∞	∞	0°	248° C.	.....
14	s. soluble	soluble	∞	.....	247-50°	usually yel...
15	insol.	soluble	soluble	.....	155-5.6°	.....
16	insol.	soluble	∞	-37.8°	153-5°	.....
17	insol.	0.59 <sup>15</sup>	1.17 <sup>15</sup>	216.5°	351°	moncl. leaf. or tab.
18	v. v. s. sol.	v. soluble	.....	206° dec.	dec.	{ silky yel. need./al.
19	insol.	soluble	s. soluble	260°	subl.	orange need.
20	insol.	soluble	soluble	280° abt.	subl.	sm.yel leaf/al.
21	v. v. s. sol.	s. soluble	s. soluble	238°	.....	yel. need./al.
22	s. soluble	v. soluble	.....	18°	210-15 dec.	oil.....
23	s. sol. hot	v. soluble	s. soluble*	> 330°	462° C.	lg. or need./al.
24	insol.	v. soluble	v. soluble	170°	446°	leaf. or tablets
25	.....	{ 0.05 <sup>10</sup> 2.3 <sup>70</sup>	s. soluble	{ 275° 284.05° C.	380° C.	{ tetrag.yel. need.
26	.....	v. s. sol.	v. v. s. sol.	282-4°	subl.	yel. pris./al..
27	v. v. s. sol.	v. sol.	.....	> 330°	.....	yel. needles..
28	sol. acetone	v. soluble	v. soluble	.....	200° dec.	need. or leaf/a
29	insol.	.....	.....	.....	96-100°	.....
30	insol.	soluble	soluble	.....	158.5° <sup>730</sup>	.....
31	s. soluble	insol.	soluble	.....	80.6°	... moncl./w.
32	v. soluble	v. soluble	sl. soluble	113°	319° C. <sup>174</sup>	leaf. et.:
33						
34	soluble	insoluble	.....	.....	.....	amorphous..
35	56 <sup>10</sup>	0.46 <sup>10</sup> 90%	158.5-95°	.....	.....	rhombic pris

\* Slightly soluble chloroform; insoluble benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Arabinose (l.) . . . . .	$\text{OHCH}_2(\text{CHOH})_3\text{CHO} \dots$	150.08	.....
2	Arabite . . . . .	$\text{CH}_2\text{OH}(\text{CHOH})_5\text{CH}_2\text{OH}$	152.10	.....
3	Arachidic acid . . . . .	$\text{C}_{20}\text{H}_{40}\text{O}_2 \dots$	312.32	.....
4	Arbutin . . . . .	$\text{C}_{12}\text{H}_{16}\text{O}_7 + \frac{1}{2}\text{H}_2\text{O} \dots$	568.27	.....
5	Arsenic-diethyl . . . . .	$[\text{As}(\text{C}_2\text{H}_5)_2]_2 \dots$	266.16	1. +
6	Asparagine (l.) . . . . .	$\text{C}_2\text{H}_3\text{NH}_2\text{CO}_2\text{HCONH}_2 \dots$	132.14	1.548 <sup>4</sup>
7	Atronic acid . . . . .	$\text{C}_{17}\text{H}_{14}\text{O}_2 \dots$	250.12	.....
8	Atropic acid . . . . .	$\text{CH}_2: \text{C}(\text{C}_6\text{H}_5)\text{CO}_2\text{H} \dots$	148.06	.....
9	Aurine . . . . .	$\text{C}_{19}\text{H}_{14}\text{O}_3 \dots$	290.12	.....
10	Azelaic acid . . . . .	$\text{CO}_2\text{H}(\text{CH}_2)_7\text{CO}_2\text{H} \dots$	188.13	.....
11	Azobenzene . . . . .	$\text{C}_6\text{H}_5\text{N}_2\text{C}_6\text{H}_5 \dots$	182.16	1.203
12	Azobenzoic acid (o.) . . . . .	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2 \dots$	270.16	.....
13	“ “ (m.) . . . . .	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2 + \frac{1}{2}\text{H}_2\text{O} \dots$	279.17	.....
14	“ “ (p.) . . . . .	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2 + \frac{1}{2}\text{H}_2\text{O} \dots$	279.17	.....
15	Azonaphthaline (aa.) . . . . .	$\text{C}_{10}\text{H}_7\text{N}: \text{N.C}_{10}\text{H}_7 \dots$	282.20	.....
16	Azophenetol (o.) . . . . .	$(\text{C}_2\text{H}_5\text{O.C}_6\text{H}_4)_2\text{N}_2 \dots$	270.23	.....
17	“ (p.) . . . . .	$(\text{C}_2\text{H}_5\text{O.C}_6\text{H}_4)_2\text{N}_2 \dots$	270.23	.....
18	Azophenol (o.) . . . . .	$(\text{OH.C}_6\text{H}_4)_2\text{N}_2 \dots$	214.16	.....
19	“ (p.) . . . . .	$(\text{OH.C}_6\text{H}_4)_2\text{N}_2 \dots$	214.16	.....
20	Azotoluene (oo.) . . . . .	$(\text{CH}_3\text{C}_6\text{H}_4)_2\text{N}_2 \dots$	210.20	.....
21	“ (mm.) . . . . .	$(\text{CH}_3\text{C}_6\text{H}_4)_2\text{N}_2 \dots$	210.20	.....
22	“ (pp.) . . . . .	$(\text{CH}_3\text{C}_6\text{H}_4)_2\text{N}_2 \dots$	210.20	.....
23	Azoxybenzene . . . . .	$(\text{C}_6\text{H}_5)_2: \text{N}_2\text{O} \dots$	198.16	.....
24	Azoxybenzoic acid (o.) . . . . .	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2\text{O} \dots$	286.16	.....
25	“ “ (m.) . . . . .	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2\text{O} \dots$	286.16	.....
26	“ “ (p.) . . . . .	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2\text{O} \dots$	286.16	.....
27	Barbituric acid . . . . .	$\text{CO}: (\text{NH.CO})_2: \text{CH}_2$ $+ 2\text{H}_2\text{O}$	164.05	.....
28	Beberine . . . . .	$\text{C}_{18}\text{H}_{21}\text{NO}_3 \dots$	299.21	.....
29	Behenic acid . . . . .	$\text{C}_{22}\text{H}_{44}\text{O}_2 \dots$	340.33	.....
30	Behenolic acid . . . . .	$\text{C}_{22}\text{H}_{40}\text{O}_2 \dots$	336.32	.....
31	Benzal chloride . . . . .	$\text{C}_6\text{H}_5\text{CHCl}_2 \dots$	160.95	1.295 <sup>16</sup>
32	Benzalcohol . . . . .	$\text{C}_6\text{H}_5\text{CH}_2\text{OH} \dots$	108.06	1.043 <sup>32</sup>
33	“ (K.) . . . . .	$\text{C}_6\text{H}_5\text{CH}_2\text{OH} \dots$	108.06	1.047 <sup>44</sup>

\* Soluble KOH.

† Soluble benzene.



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	60 <sup>10</sup>	0.42 <sup>9</sup> /90%	insol.	160° abt.	.....	rhombic/al. .
2	v. soluble	s. soluble	.....	102°	.....	warts
3	insol.	s. soluble	soluble	77°	.....	leaflets. ....
4	v. sol. hot	soluble	v. v. s. sol.	165-6°	.....	silky needles.
5	insol.	soluble	soluble	.....	185-90°	.....
6	{ 1.79 <sup>10</sup> 52.9 <sup>100</sup>	insol.	insol.	dec.	dec.	long rhombic.
7	v. v. s. sol.	v. soluble	.....	164°	.....	pris./acet. amor./w.
8	0.14 <sup>19</sup>	.....	v. sol. CS <sub>2</sub>	106-7°	267°	moncl. tab.al.
9	insol.	soluble	sol, solKOH	abt. 220°	.....	red rhombic.
10	0.24 <sup>20</sup> -2.2 <sup>65</sup>	v. soluble	v. soluble	106.2°	abt.360 dec.	leaf., needles.
11	insol.	8.5 <sup>20</sup>	sol., v. sol. lig.	68°	293°	or. yel.moncl. leaf.
12	s. soluble	mod. sol.	.....	237° dec.	.....	yel. needles. .
13	v. s. sol.	s. soluble	s. soluble	dec.	.....	amor. powder
14	insol.	insol.	insol.	dec.	dec.	reddish amor.
15	insol.	s. soluble	sol. acet.†	190°	subl.	red need. acet
16	insol.	soluble	sol., sol.HCl	131°	240° dec.	red pris./al...
17	insol.	s. soluble	v. soluble	160°	dist.	orange leaf ...
18	insol.	0.33	v. sol.*	171°	subl.	yel. leaflets. .
19	s. soluble	v. soluble	v. sol.†	204°	.....	brown triclin.
20	insoluble §	6.03 <sup>14</sup>	147 <sup>160</sup>	55°	.....	red moncl. prisms/et.
21	insol.	v. soluble	v. soluble	54-5°	.....	or. red rhomb.
22	insol.	mod. sol.	v. soluble	144°	.....	or.y.need./lig.
23	insol.	17.5	soluble	36°	dec.	yel. rhombic needles
24	v. s. sol.	mod. sol.	mod. sol.	237-242°	dec.	yel. triclin. tab./al.
25	insol.	s. soluble	s. soluble	320°	.....	mic. needles .
26	.....	insol.	sol. pyridin	no m. p.	dec. 240°	yellow prisms
27	s. soluble	.....	.....	dec.	.....	rhombic. ....
28	s. soluble	v. sol.†	sol.	214°	.....	pris. meth. al.
29	insol.	v. s. sol.	soluble	84	.....	needles
30	insol.	v. soluble	.....	57.5°	.....	need./abs. al.
31	.....	.....	.....	.....	212.4°	.....
32	4.0 <sup>17</sup>	.....	.....	.....	206.5° C.	.....
33	4.0 <sup>17</sup>	soluble	∞	.....	202-5°	.....

† Soluble acetone and chloroform.

§ Very soluble benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Benzaldehyde . . . . .	$C_6H_5.CHO$ . . . . .	106.05	1.0504 <sup>17</sup>
2	Benzaldoxime ( $\alpha$ ) (anti) . . . . .	$C_6H_5.CH:NOH$ . . . . .	121.10	1.11 <sup>20</sup>
3	“ ( $\beta$ ) . . . . .	$C_6H_5.CH:NOH$ . . . . .	121.10	1
4	Benzamide . . . . .	$C_6H_5.CONH_2$ . . . . .	121.10	1.341 <sup>4</sup>
5	Benzanilid . . . . .	$C_6H_5.CONHC_6H_5$ . . . . .	197.13	1.306–1.321 <sup>4</sup>
6	Benzene . . . . .	$C_6H_6$ . . . . .	78.05	0.8791 <sup>17</sup>
7	“ (K.) . . . . .	$C_6H_6$ . . . . .	78.05	0.876 <sup>18</sup>
8	hexabromide . . . . .	$C_6H_6Br_6$ . . . . .	457.81	.....
9	hexachloride . . . . .	$C_6H_6Cl_6$ . . . . .	290.75	1.87 <sup>20</sup>
10	sulphuric acid . . . . .	$C_6H_5.SO_2H$ . . . . .	142.11	.....
11	sulphone amide . . . . .	$C_6H_5.SO_2NH_2$ . . . . .	157.16	.....
12	sulphone chloride . . . . .	$C_6H_5.SO_2Cl$ . . . . .	176.55	1.378 <sup>23</sup>
13	sulphonic acid . . . . .	$C_6H_5.SO_3H + H_2O$ . . . . .	176.13	.....
14	Benzenylamidine . . . . .	$C_6H_5.CNH.NH_2$ . . . . .	120.10	.....
15	Benzidine (p.) . . . . .	$NH_2.C_6H_4.C_6H_4.NH_2$ . . . . .	184.14	.....
16	Benzil . . . . .	$C_6H_5.CO.COC_6H_5$ . . . . .	210.08	.....
17	Benzilic acid . . . . .	$(C_6H_5)_2.C(OH).CO_2H$ . . . . .	228.10	.....
18	Benzoic acid . . . . .	$C_6H_5.CO_2H$ . . . . .	122.05	1.201 <sup>21</sup>
19	anhydride . . . . .	$(C_6H_5.CO)_2O$ . . . . .	226.08	1.231–1.247 <sup>4</sup>
20	Benzophenone . . . . .	$(C_6H_5)_2CO$ . . . . .	182.08	.....
21	“ alotropic . . . . .	$(C_6H_5)_2CO$ . . . . .	182.08	.....
22	Benzotrichloride . . . . .	$C_6H_5.C.Cl_3$ . . . . .	195.39	1.380 <sup>14</sup>
23	Benzoyl-acetic acid . . . . .	$C_6H_5.COCH_2CO_2H$ . . . . .	164.06	.....
24	benzoic acid (o.) . . . . .	$C_6H_5.COC_6H_4.CO_2H + H_2O$ . . . . .	244.10	.....
25	“ “ (m.) . . . . .	$C_6H_5:COC_6H_4.CO_2H$ . . . . .	226.08	.....
26	“ “ (p.) . . . . .	$C_6H_5:COC_6H_4.CO_2H$ . . . . .	226.08	.....
27	bromide . . . . .	$C_6H_5COBr$ . . . . .	185.00	1.570 <sup>15</sup>
28	chloride . . . . .	$C_6H_5.COCl$ . . . . .	140.49	1.2122 <sup>17</sup>
29	“ (K.) . . . . .	$C_6H_5.COCl$ . . . . .	140.49	1.211 <sup>18</sup>
30	cyanide . . . . .	$C_6H_5.COCN$ . . . . .	131.08	.....
31	fluoride . . . . .	$C_6H_5.COF$ . . . . .	124.04	>1
32	iodide . . . . .	$C_6H_5.COI$ . . . . .	231.01	.....
33	Benzyl acetate . . . . .	$CH_3.CO_2.CH_2.C_6H_5$ . . . . .	150.08	1.0570 <sup>16</sup>
34	amine . . . . .	$C_6H_5.CH_2NH_2$ . . . . .	107.11	1.990 <sup>14</sup>
35	benzoate . . . . .	$C_6H_5.CO_2.CH_2.C_6H_5$ . . . . .	212.10	1.114 <sup>18</sup>
36	bromide . . . . .	$C_6H_5.CH_2Br$ . . . . .	171.02	1.4380 <sup>17</sup>
37	carbinol . . . . .	$C_6H_5.CH_2.CH_2OH$ . . . . .	122.08	1.0337 <sup>21</sup>
38	chloride . . . . .	$C_6H_5.CH_2Cl$ . . . . .	126.51	1.107 <sup>14</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	0.3	soluble	.....	-13.5°	179.5°	.....
2	v. soluble	v. soluble	v. soluble	35°	200°	leaflets.....
3	sol. bz.	.....	v. soluble	128-30°	.....	rhombic tab. or need./et.
4	s. soluble	v. soluble	v. soluble	128°	290°	moncl. tab...
5	insol.	soluble	s. soluble	160-1°	dist.	leaflets
6	insol.	soluble	soluble	5.42°	80.36°	rhombic pris.
7	0.01 abt.	soluble	∞	5.4°	80-1°	rhombic pris.
8	.....	s. soluble	s. soluble	212°	.....	monoclinic...
9	4.35 <sup>15</sup> chlo.	6.5 <sup>18</sup> bz.	v. sol. anil.	157°	dec. 288°	monoclinic
10	s. soluble	v. soluble	v. soluble	83-4°	dec. 100°	long prisms..
11	0.43	v. soluble	v. soluble	147-8°	.....	need. or leaf..
12	insol.	v. soluble	soluble	14.5°	246-7° dec.	.....
13	v. v. sol.	v. v. sol.	insol.	43-4°	.....	large leaflets.
14	mod. sol.	v. sol.	s. soluble	75-80°	.....	crystalline
15	0.04 <sup>12</sup>	soluble	2.2	122°	360°+	leaflets/w....
16	insol.	v. soluble	v. soluble *	95°	346-8° C. †	hexag. pris./e
17	s. soluble	v. soluble	v. soluble	150°	dec. 180°	moncl. need..
18	0.268 <sup>17</sup>	48 <sup>20</sup>	31 <sup>20</sup>	121.2° C.	249.2° C.	moncl. need. or leaflets
19	insol.	mod. sol.	mod. sol.	42°	360°	rhombic pris.
20	insol.	v. soluble	v. soluble	48-8.5°	306° C.	lg. rhom. pris.
21	.....	v. soluble	v. soluble	26-6.5°	306°	large moncl..
22	dec.	.....	.....	-22.5°	213-4°	.....
23	s. soluble	v. soluble	v. soluble	103-4° dec..	.....	mic. needles.
24	mod. sol.	.....	.....	93°, 127° anh	.....	tricl. need./w.
25	v. s. sol.	v. soluble	v. sol.	161-2°	.....	large needles.
26	v. s. sol. hot	v. soluble	v. soluble	194°	sub.	moncl. leaf/w.
27	.....	soluble	.....	0°	218-9°	.....
28	dec.	dec.	.....	-1°	198° <sup>749</sup>	.....
29	v. s. sol.	sol. dec.	∞	-1 -0°	196-8°	.....
30	insol.	.....	.....	32-3°	206-8°	tablets.....
31	.....	.....	.....	.....	161.5° <sup>745</sup>	.....
32	dec.	soluble	.....	dec.	dec.	leaflets.....
33	.....	.....	.....	.....	206°	.....
34	∞	∞	∞	.....	183° C.	.....
35	.....	soluble	.....	<20°	323-4° C.	leaflets.....
36	.....	.....	.....	.....	198-9°	.....
37	.....	soluble	.....	.....	212°	.....
38	insoluble	soluble	soluble	-48.0°	179°	.....

\* Soluble at KOH.

† Decomposes.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Benzyl</b>			
1	cyanide . . . . .	$C_6H_5.CH_2CN$ . . . . .	117.10	1.0171 <sup>9</sup>
2	disulphide . . . . .	$(C_6H_5.CH_2)_2S_2$ . . . . .	246.24	.....
3	ether . . . . .	$(C_6H_5.CH_2)_2O$ . . . . .	198.12	1.0359 <sup>10</sup>
4	iodide . . . . .	$C_6H_5.CH_2I$ . . . . .	218.02	1.7335 <sup>28</sup>
5	ketone . . . . .	$(C_6H_5.CH_2)_2CO$ . . . . .	210.13	.....
6	mercaptan . . . . .	$C_6H_5.CH_2.SH$ . . . . .	124.13	1.058 <sup>20</sup>
7	mustard oil . . . . .	$C_6H_5.CH_2.NCS$ . . . . .	149.16	1. +
8	sulphide . . . . .	$(C_6H_5.CH_2)_2S$ . . . . .	214.18	.....
9	sulphocyanide . . . . .	$C_6H_5.CH_2.SCN$ . . . . .	149.16	.....
10	sulphone . . . . .	$(C_6H_5.CH_2)_2SO_2$ . . . . .	246.18	.....
11	Berberonic acid . . . . .	$2:4:5C_5H_5N(CO_2H)_3.2H_2O$	247.11	.....
12	Beryllium ethyl . . . . .	$Be(C_2H_5)_2$ . . . . .	67.18	.....
13	Bi-anthyl . . . . .	$C_{28}H_{18}$ . . . . .	354.15	.....
14	Bilirubin . . . . .	$C_{42}H_{54}N_4O_6$ . . . . .	286.23	.....
15	Bismuth tri-ethyl . . . . .	$Bi(C_2H_5)_3$ . . . . .	295.62	1.82
16	Biuret . . . . .	$NH(CONH_2)_2.H_2O$ . . . . .	103.16	.....
17	Borneol (i.) . . . . .	$C_{10}H_{17}OH$ . . . . .	154.15	1.011
18	" (d.) . . . . .	$C_{10}H_{17}OH$ . . . . .	154.15	1.011
19	Bornyl amine . . . . .	$C_{10}H_{17}NH_2$ . . . . .	153.20	.....
20	Brassicic acid . . . . .	$C_{22}H_{42}O_2$ . . . . .	338.34	.....
21	Bromacetic acid . . . . .	$CH_2BrCO_2H$ . . . . .	138.99	.....
22	Bromacetylene . . . . .	$CH: CBr$ . . . . .	104.97	.....
23	Bromal . . . . .	$CBr_3.CO_2H$ . . . . .	280.89	3.34
24	Bromaniline (o.) . . . . .	$BrC_6H_4NH_2$ . . . . .	172.05	.....
25	" (m.) . . . . .	$BrC_6H_4NH_2$ . . . . .	172.05	.....
26	" (p.) . . . . .	$BrC_6H_4NH_2$ . . . . .	172.05	.....
27	Brombenzamide (o.) . . . . .	$BrC_6H_4CONH_2$ . . . . .	200.05	.....
28	" (m.) . . . . .	$BrC_6H_4CONH_2$ . . . . .	200.05	.....
29	" (p.) . . . . .	$BrC_6H_4CONH_2$ . . . . .	200.05	.....
30	Brombenzene . . . . .	$C_6H_5Br$ . . . . .	157.00	1.4898 <sup>9</sup>
31	Brombenzoic acid (o.) . . . . .	$BrC_6H_4.CO_2H$ . . . . .	201.00	.....
32	" " (m.) . . . . .	$BrC_6H_4.CO_2H$ . . . . .	201.00	.....
33	" " (p.) . . . . .	$BrC_6H_4.CO_2H$ . . . . .	201.00	.....
34	Bromethylene . . . . .	$CH_2: CHBr$ . . . . .	106.99	1.5167 <sup>9</sup>
35	Bromine cyanide . . . . .	$BrCN$ . . . . .	106.00	.....
36	Brommalonic acid . . . . .	$CHBr(CO_2H)_2$ . . . . .	182.99	.....
37	Bromnaphthaline (α) . . . . .	$C_{10}H_7Br$ . . . . .	207.02	1.4887 <sup>10</sup>
38	" (β) . . . . .	$C_{10}H_7Br$ . . . . .	207.02	1.605 <sup>0</sup>
39	Bromoform . . . . .	$CHBr_3$ . . . . .	252.89	2.8341 <sup>1</sup>

\* Soluble  $CS_2$  and benzene; 0.17 parts soluble in 100 parts chloroform.  
Very soluble in acetone and ligroin.

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insoluble	soluble	.....	.....	231.7° C.	.....
2	sol. benzene	s. soluble	v. soluble	71°-72°	.....	leaflets/al....
3	.....	.....	.....	.....	295-8°	oily.....
4	s. sol. CS <sub>2</sub>	.....	.....	24.1°	decomp.	crystalline...
5	.....	.....	.....	33.9°	330.6° C.	large cryst/et
6	.....	.....	.....	.....	194-5°	.....
7	insol.	.....	.....	.....	243°	.....
8	insol.	soluble	soluble	49°	.....	rhomb. tab./e
9	insol.	v. soluble	v. soluble	41°	230-5°	prisms .....
10	v. sol. acet.	s. soluble	v. sol. bz.	150°	.....	flat needles/w
11	v. s. sol.	v. s. sol.	insoluble	235°	.....	triclinic pris.
12	.....	.....	.....	.....	185-8°	.....
13	.....	.....	.....	300°	.....	leaf. toluene .
14	insoluble	v. s. sol.	v. v. s. sol.*	.....	.....	amorphous ..
15	insoluble	v. soluble	v. soluble †	.....	107°	oily
16	1.54 <sup>16</sup>	soluble	.....	190°	.....	needles.....
17	v. s. sol.	v. soluble	v. soluble	210.5°	sublimes	hexag.leaf./li.
18	v. s. sol.	v. soluble	v. soluble †	203-4°	211-12°	hexag. leaf...
19	v. v. s. sol.	v. v. sol.	v. v. sol.	159-60°	199-200°	.....
20	0.74/ <sup>24</sup>	v. s. sol.	soluble §	114°	282° <sup>30</sup>	leaflets/alc...
21	∞	∞	∞	49-50°	208°	hexagonal...
22	v. soluble	.....	.....	.....	.....	liquid at 3 at.
23	decomp.	.....	.....	.....	174.0°	.....
24	.....	soluble	.....	31-31.5°	250-1°	crystalline...
25	.....	soluble	.....	18-18.5°	251°	crystalline...
26	insol.	v. soluble	v. soluble	66.4°	dec.	rhombic.....
27	sol. hot	soluble	s. soluble	155-6°	.....	needles/w....
28	s. sol. hot	v. soluble	.....	155.3°	.....	leaflets/dil.al.
29	v. s. sol. hot	mod. sol.	s. soluble	189.5°	.....	rectang. tab.
30	.....	soluble	.....	-31.1°	156.6°	.....
31	s. soluble	v. soluble	v. soluble	150°	subl.	large need./w.
32	s. soluble	v. soluble	v. soluble	155°	>280°	needles.. [w.
33	v.v.s.sol.hot	v. soluble	v. soluble	251°	.....	need. /et-leaf.
34	.....	.....	.....	.....	16° <sup>750</sup>	.....
35	soluble	soluble	.....	52°	61.3° <sup>750</sup>	needles.....
36	.....	v. soluble	v. soluble	.....	.....	needles.....
37	∞ bz.	∞ abs.	∞	4-5°	279.5° <sup>753</sup>	prisms .....
38	sol. bz.	6	v. soluble	59°	281-2° C.	rhombic leaf.
39	insol.	.....	.....	9°	151.2° C.	.....

† 16 parts dissolve in 100 parts lig. at 20°, and 24 parts in 100 parts benz.

§ Insoluble ligroin and benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Bromoform Phg. IV (K.)	$\text{CHBr}_3$ .....	252.89	2.829–2.832
2	Bromphenol (o.).....	$\text{BrC}_6\text{H}_4\text{OH}$ .....	173.00	.....
3	“ (m.).....	$\text{BrC}_6\text{H}_4\text{OH}$ .....	173.00	.....
4	“ (p.).....	$\text{BrC}_6\text{H}_4\text{OH}$ .....	173.00	1.840 <sup>15</sup>
5	Brompyridine (3).....	$\text{C}_5\text{H}_4\text{N.Br}$ .....	158.03	1.632 <sup>10</sup>
6	Bromtoluene (o.).....	$\text{BrC}_6\text{H}_4\text{CH}_3$ .....	171.02	1.4222 <sup>39</sup>
7	“ (m.).....	$\text{BrC}_6\text{H}_4\text{CH}_3$ .....	171.02	1.4099 <sup>39</sup>
8	“ (p.).....	$\text{BrC}_6\text{H}_4\text{CH}_3$ .....	171.02	1.3898 <sup>39</sup>
9	Butadiene 1, 2.....	$\text{CH}_2:\text{C}:\text{CHCH}_3$ .....	54.05	.....
10	“ 1, 3.....	$\text{CH}_2:\text{CH}:\text{CH}:\text{CH}_2$ .....	54.05	.....
11	Butane.....	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$ .....	58.08	0.60 <sup>0</sup> 2.046(a)
12	Buten(1)oiс(4) acid.....	$\text{CH}_2:\text{CH}:\text{CH}_2\text{CO}_2\text{H}$ .....	86.05	.....
13	Butyl acetate.....	$\text{CH}_3\text{CO}_2\text{C}_4\text{H}_9$ .....	116.10	0.8817 <sup>20</sup>
14	acetylene.....	$\text{C}_2\text{H}_2$ .....	82.08	.....
15	alcohol (n.).....	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{OH}$ .....	74.08	0.8098 <sup>39</sup>
16	“ (K.).....	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{OH}$ .....	74.08	0.807–0.808 <sup>44</sup>
17	“ sec.....	$\text{CH}_3\text{CHOHCH}_2\text{CH}_3$ .....	74.08	0.819 <sup>22</sup>
18	amine, (n.).....	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{NH}_2$ .....	73.13	0.7401 <sup>20</sup>
19	benzene.....	$\text{C}_6\text{H}_6$ .....	134.12	0.864 <sup>15</sup>
20	benzoate.....	$\text{C}_6\text{H}_5\text{CO}_2\text{C}_4\text{H}_9$ .....	178.12	1.000 <sup>20</sup>
21	bromide.....	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{Br}$ .....	137.03	1.2792 <sup>20</sup>
22	butyrate (n.).....	$\text{C}_3\text{H}_7\text{CO}_2\text{C}_4\text{H}_9$ .....	144.13	0.8878 <sup>0</sup>
23	carbinol (tert.).....	$(\text{CH}_3)_3\text{CCH}_2\text{OH}$ .....	88.10	0.8122 <sup>20</sup>
24	chloride.....	$\text{CH}_3(\text{CH}_2)_3\text{Cl}$ .....	92.52	0.8874 <sup>20</sup>
25	cyanide.....	$\text{CH}_3(\text{CH}_2)_3\text{CN}$ .....	83.04	0.9995 <sup>24</sup>
26	ether.....	$(\text{C}_4\text{H}_9)_2\text{O}$ .....	130.15	0.769 <sup>20</sup>
27	“ (sec.).....	$(\text{CH}_3(\text{C}_2\text{H}_5)\text{CH})_2\text{O}$ .....	130.15	0.7616 <sup>15</sup>
28	formate.....	$\text{HCO}_2\text{C}_4\text{H}_9$ .....	102.08	0.9108
29	iodide.....	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{I}$ .....	184.04	1.6166 <sup>39</sup>
30	mercaptan.....	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{SH}$ .....	90.14	0.858 <sup>0</sup>
31	mustard oil.....	$\text{CH}_3\text{CH}_2\text{NCS}$ .....	115.17	.....
32	phenyl ketone.....	$\text{C}_6\text{H}_5\text{CO.C}_6\text{H}_5$ .....	162.11	.....
33	sulphide.....	$(\text{C}_4\text{H}_9)_2\text{S}$ .....	146.21	0.8523 <sup>0</sup>
34	Butylene.....	$\text{C}_2\text{H}_5\text{CH}:\text{CH}_2$ .....	56.06	.....
35	Butyric acid (n.).....	$\text{CH}_3(\text{CH}_2)_2\text{CO}_2\text{H}$ .....	88.06	0.9599 <sup>39</sup>
36	“ (K.).....	$\text{CH}_3(\text{CH}_2)_2\text{CO}_2\text{H}$ .....	88.06	0.956 <sup>44</sup>
37	aldehyde.....	$\text{CH}_3(\text{CH}_2)_2\text{CHO}$ .....	72.06	0.8170 <sup>39</sup>
38	anhydride.....	$(\text{CH}_3(\text{CH}_2)_2\text{CO})_2\text{O}$ .....	158.12	0.978 <sup>15</sup>
39	Cacodyl.....	$(\text{CH}_3)_2\text{As.As}(\text{CH}_3)_2$ .....	210.10	1. +
40	chloride.....	$(\text{CH}_3)_2\text{AsCl}$ .....	140.50	1. +
41	Cacodylic acid.....	$(\text{CH}_3)_2\text{AsO.OH}$ .....	138.05	.....
42	Cacodyl oxide.....	$((\text{CH}_3)_2\text{As})_2\text{O}$ .....	226.10	1.462 <sup>15</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. s. sol.	soluble	∞	7°	148–50°	.....
2	.....	.....	.....	.....	194–5°	oil.....
3	.....	.....	.....	32–3°	236–6.5°	leaflets.....
4	sol. chlo.	v. soluble	v. soluble	63–4°	238°	tetrag./chlo..
5	v. s. sol.	.....	.....	.....	169.5°	oil.....
6	insol.	soluble	.....	–25.9°	180.3° <sup>0754</sup>	.....
7	insol.	soluble	.....	–39.8°	183.7°	.....
8	insol.	soluble	.....	28.5°	185.2°	rhombic.....
9	.....	.....	.....	.....	18–19°	.....
10	.....	.....	.....	.....	1°	.....
11	insol.	1800 cc.	.....	.....	1°	.....
12	.....	.....	.....	.....	168°	.....
13	s. soluble	∞	∞	.....	125.1° <sup>0740</sup>	.....
14	.....	.....	.....	.....	68–70°	.....
15	8.3	∞	∞	.....	117.02°C.	.....
16	s. soluble	∞	∞	.....	115–7°	.....
17	v. soluble	.....	.....	.....	99.8°	.....
18	∞	soluble	soluble	.....	75.5° <sup>0740</sup>	.....
19	.....	.....	.....	.....	180°	.....
20	.....	.....	.....	< –20°	247.3° C.	thick oil ....
21	.....	.....	.....	.....	99.88° C.	.....
22	.....	.....	.....	.....	164.8° C.	.....
23	s. soluble	.....	.....	52–3°	113–4°	.....
24	.....	.....	.....	.....	77.96° C.	.....
25	insol.	.....	.....	.....	160° <sup>0764</sup>	.....
26	soluble	.....	.....	.....	140.9°	.....
27	.....	∞	∞	.....	122–2.5°	.....
28	.....	.....	.....	.....	106.9°	.....
29	.....	.....	.....	.....	129.9°	.....
30	.....	.....	.....	.....	97–8°	.....
31	.....	.....	.....	.....	167°	.....
32	.....	.....	.....	.....	237.5–8.5°	.....
33	insol.	.....	.....	.....	182°	.....
34	.....	.....	.....	.....	–5°	.....
35	∞	∞	∞	–7.9° C.	162.3° C.	.....
36	∞	∞	∞	abt. –4°	161–3°	.....
37	3.6	.....	.....	.....	73–4°	.....
38	.....	.....	.....	.....	191–3°	.....
39	s. soluble	soluble	soluble	–6°	170°	oil.....
40	insol.	.....	.....	.....	100°	.....
41	v. soluble	soluble	.....	200°	.....	rhomb. pris. .
42	insol.	.....	.....	–25°	120°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Cacodyl sulphide. . . . .	$((\text{CH}_3)_2\text{As})_2\text{S}$ . . . . .	242.16	.....
2	trichloride. . . . .	$(\text{CH}_3)_2\text{AsCl}_3$ . . . . .	211.40	.....
3	Cadmium methyl. . . . .	$\text{Cd}(\text{CH}_3)_2$ . . . . .	142.45	.....
4	Caffeic acid. . . . .	$\text{C}_9\text{H}_8\text{O}_4 + \frac{1}{2}\text{H}_2\text{O}$ . . . . .	189.07	.....
5	Caffeine. . . . .	$\text{C}_8\text{H}_{10}\text{N}_4\text{O}_2 + \text{H}_2\text{O}$ . . . . .	212.26	1.23 <sup>19</sup>
6	Camphene (i.) . . . . .	$\text{C}_{10}\text{H}_{16}$ . . . . .	136.12	.....
7	" (d. or l.) . . . . .	$\text{C}_{10}\text{H}_{16}$ . . . . .	136.12	.....
8	Campholene. . . . .	$(\text{CH}_3)_3\text{C}_6\text{H}_7$ . . . . .	124.13	0.8034 <sup>20</sup>
9	Campholic acid. . . . .	$\text{C}_9\text{H}_{17}\text{CO}_2\text{H}$ . . . . .	170.15	.....
10	Camphor (d.) . . . . .	$\text{C}_{10}\text{H}_{16}\text{O}$ . . . . .	152.13	0.992 <sup>10</sup>
11	Camphoric acid (i.) . . . . .	$\text{C}_8\text{H}_{14}(\text{CO}_2\text{H})_2$ . . . . .	200.13	.....
12	" " (d.) . . . . .	$\text{C}_8\text{H}_{14}(\text{CO}_2\text{H})_2$ . . . . .	200.13	1.193
13	" anhydride. . . . .	$\text{C}_{10}\text{H}_{14}\text{O}_3$ . . . . .	182.12	1.194 <sup>20</sup>
14	Camphronic acid (l.) . . . . .	$\text{C}_9\text{H}_{14}\text{O}_6$ . . . . .	218.12	.....
15	Cantharidine. . . . .	$\text{C}_{10}\text{H}_{12}\text{O}_2$ . . . . .	196.10	.....
16	Caoutchene. . . . .	$\text{C}_4\text{H}_6$ . . . . .	54.05	0.65— <sup>20</sup>
17	Capric acid. . . . .	$\text{CH}_3(\text{CH}_2)_8\text{CO}_2\text{H}$ . . . . .	172.16	0.8858 <sup>49</sup>
18	" " (K.) . . . . .	$\text{CH}_3(\text{CH}_2)_8\text{CO}_2\text{H}$ . . . . .	172.16	0.930 <sup>44</sup>
19	Caproic acid. . . . .	$\text{CH}_3(\text{CH}_2)_4\text{CO}_2\text{H}$ . . . . .	116.10	0.9289 <sup>20</sup>
20	Caprylic acid. . . . .	$\text{CH}_3(\text{CH}_2)_6\text{CO}_2\text{H}$ . . . . .	144.13	0.9100 <sup>49</sup>
21	" anhydride. . . . .	$(\text{C}_8\text{H}_{15}\text{O})_2\text{O}$ . . . . .	270.24	.....
22	Carbanil. . . . .	$\text{C}_6\text{H}_5\text{NCO}$ . . . . .	119.08	1.092 <sup>15</sup>
23	Carbanilid. . . . .	$\text{CO}(\text{NHC}_6\text{H}_5)_2$ . . . . .	212.18	.....
24	Carbazol. . . . .	$(\text{C}_6\text{H}_4)_2\text{NH}$ . . . . .	167.11	.....
25	Carbazoline. . . . .	$\text{C}_{12}\text{H}_{15}\text{N}$ . . . . .	173.16	.....
26	Carbon diselenide. . . . .	$\text{CSe}_2$ . . . . .	170.40	.....
27	disulphide. . . . .	$\text{CS}_2$ . . . . .	76.12	1.2598 <sup>25</sup>
28	hexachloride. . . . .	$\text{C}_2\text{Cl}_6$ . . . . .	236.70	2.011
29	monoxide. . . . .	$\text{CO}$ . . . . .	28.00	0.9674
30	oxysulphide. . . . .	$\text{COS}$ . . . . .	60.06	2.1040
31	suboxide. . . . .	$\text{OC}:\text{C}:\text{CO}$ . . . . .	68.00	.....
32	tetrabromide. . . . .	$\text{CBr}_4$ . . . . .	331.84	3.42
33	tetrachloride. . . . .	$\text{CCl}_4$ . . . . .	153.80	1.6084 <sup>9.5</sup> <sub>4</sub>
34	" (K.) . . . . .	$\text{CCl}_4$ . . . . .	153.80	1.591 <sup>44</sup>
35	tetraiodide. . . . .	$\text{CI}_4$ . . . . .	519.88	4.32 <sup>20</sup>
36	Carbonyl chloride. . . . .	$\text{COCl}_2$ . . . . .	98.90	1.392 <sup>49</sup>
37	Carbostyryl. . . . .	$\text{Py}_2, \text{C}_9\text{H}_6\text{NOH}$ . . . . .	145.10	.....
38	Carboxy-cinnamic ac. (o.)	$\text{CO}_2\text{H.C}_6\text{H}_4.\text{CH}:\text{CH.CO}_2\text{H}$	192.06	.....



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	soluble	soluble	.....	.....	.....	.....
2	.....	.....	.....	dec. 40-50	.....	.....
3	dec.	.....	.....	.....	104-5°?	.....
4	soluble	v. soluble	.....	195°	dec.	yel. moncl. pris./w. glit. needles .
5	{ 1.35 <sup>16</sup> * }	0.61 abs. <sup>16</sup> 3.12 abs. <sup>78</sup>	0.044 <sup>16</sup> 36 <sup>35</sup>	234-5°	sub.	.....
6	.....	v. soluble	v. soluble	47°	157° C.	feath. need...
7	.....	.....	.....	51-2°	159° C.	feath. cryst. /al.
8	.....	v. soluble	v. soluble	.....	138°	.....
9	0.016 <sup>19</sup>	soluble	soluble	105-6°	255°	leaf./et. + al.
10	v. s. sol.	120 <sup>12</sup>	v. soluble	176.4°	205.3°	hexagonal
11	0.239	33	28	208°	.....	crystals
12	0.625 <sup>12</sup>	112	insol.	180.7° C.	dec.	monoclinic ..
13	v. s. sol.	v. soluble	v. soluble	220-1°	dec. 270°	rhb. pris./al..
14	6.0	v. soluble	v. soluble	136-7°	dist.	sm. needles..
15	0.003	100	0.11	218° C.	.....	trimet. tab...
16	.....	.....	.....	-10°	14.5°	.....
17	v. s. sol.	soluble	soluble	31.3°	268.4° C.	needles ..
18	v. s. sol. hot	soluble	soluble	30-1°	268-9°	finewhite nee.
19	s. soluble	soluble	soluble	-5.2°	205°	oily liquid...
20	0.25 <sup>100</sup>	∞	∞	16.5°	237.5° C.	leaflets. ....
21	.....	.....	.....	.....	280-90°	oil.....
22	dec.	comb.	.....	.....	166° <sup>769</sup>	.....
23	v. s. sol.	v. soluble	v. soluble	235°	sub. 260°	prisms/al....
24	insol.	0.92	s. soluble	238°	351.5° C.	leaf. tablets..
25	v. s. sol.	v. soluble	v. soluble	99°	296-7°	silky need. or yellow...[pris.
26	.....	.....	.....	.....	.....	.....
27	0.101/ <sup>20</sup>	∞	∞	-110°	46.2°	.....
28	.....	.....	.....	187°	185°	rhb. tab./al.
29	3.3 cc.	20 cc./ <sup>20</sup>	.....	-211°	-190°	.....
30	100 cc.	∞	∞	.....	0°12.5 at.	.....
31	.....	.....	.....	.....	7°	.....
32	insol.	soluble	soluble	92.5°	189.5°	tablets.....
33	0.080 <sup>20</sup>	v. soluble	v. soluble	-19.5°	76.74° C.	.....
34	v. v. s. sol.	∞	∞	.....	76-7°	.....
35	.....	.....	.....	.....	dec.	red regular ..
36	dec.	dec.	.....	.....	8.2° C.	.....
37	v. s. sol.	v. soluble	v. soluble	199-200°	sub.	large pris./al.
38	s. soluble	v. soluble	s. soluble	173-5°	.....	needles/w....

\* 0.059 CS<sub>2</sub>; 12.97 chloroform.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Carminic acid . . . . .	$C_{17}H_{18}O_{10}$ . . . . .	382.15	.....
2	Carnacrol . . . . .	$(CH_2)_2CH.C_6H_3(CH_2).OH$	150.12	0.9856 <sup>16</sup>
3	Cellulose . . . . .	$(C_6H_{10}O_5)_x$ . . . . .	162.08	1.27-1.45
4	Cerotic acid . . . . .	$C_{26}H_{52}O_2$ . . . . .	396.42	0.8359 <sup>4</sup>
5	Ceryl alcohol . . . . .	$C_{27}H_{56}OH$ . . . . .	396.45	.....
6	Cetyl " . . . . .	$C_{16}H_{33}OH$ . . . . .	242.27	0.8176 <sup>4</sup>
7	Chlor-acetic acid . . . . .	$ClCH_2.CO_2H$ . . . . .	94.48	1.390 <sup>75</sup>
8	" " (K.) . . . . .	$ClCH_2.CO_2H$ . . . . .	94.48	1.3978 <sup>84</sup>
9	acetone . . . . .	$CH_2Cl.CO.CH_3$ . . . . .	92.49	1.162 <sup>16</sup>
10	acetyl chloride . . . . .	$CH_2Cl.COCl$ . . . . .	112.92	1.495 <sup>o</sup>
11	acetylene . . . . .	$CH:CCl$ . . . . .	60.46	.....
12	allylene . . . . .	$CH:C.CH_2Cl$ . . . . .	74.48	1.0454 <sup>5</sup>
13	aniline (o.) . . . . .	$ClC_6H_4.NH_2$ . . . . .	127.54	1.2338 <sup>o</sup>
14	" (m.) . . . . .	$ClC_6H_4.NH_2$ . . . . .	127.54	1.2432 <sup>o</sup>
15	" (p.) . . . . .	$ClC_6H_4.NH_2$ . . . . .	127.54	.....
16	benzamide (o.) . . . . .	$ClC_6H_4.CONH_2$ . . . . .	155.54	.....
17	" (m.) . . . . .	$ClC_6H_4.CONH_2$ . . . . .	155.54	.....
18	" (p.) . . . . .	$ClC_6H_4.CONH_2$ . . . . .	155.54	.....
19	benzene . . . . .	$C_6H_5Cl$ . . . . .	112.49	1.1181 <sup>10</sup>
20	" (K.) . . . . .	$C_6H_5Cl$ . . . . .	112.49	1.104 <sup>11</sup>
21	benzoic acid (o.) . . . . .	$ClC_6H_4.CO_2H$ . . . . .	156.49	.....
22	" " (m.) . . . . .	$ClC_6H_4.CO_2H$ . . . . .	156.49	.....
23	" " (p.) . . . . .	$ClC_6H_4.CO_2H$ . . . . .	156.49	.....
24	diphenyl (o.) . . . . .	$Cl.C_6H_4.C_6H_5$ . . . . .	188.52	.....
25	" (m.) . . . . .	$Cl.C_6H_4.C_6H_5$ . . . . .	188.52	.....
26	" (p.) . . . . .	$Cl.C_6H_4.C_6H_5$ . . . . .	188.52	.....
27	ether . . . . .	$CH_3.CHCl.O.C_2H_5$ . . . . .	108.52	.....
28	ethyl alcohol (2) . . . . .	$CH_2Cl.CH_2OH$ . . . . .	80.49	1.2233 <sup>o</sup>
29	Chlorhydrine . . . . .	$CH_2Cl.CHOH.CH_2OH$ . . . . .	110.50	1.1302 <sup>o</sup>
30	Chlor-methyl ether . . . . .	$ClCH_2.O.CH_3$ . . . . .	80.49	.....
31	malonic acid . . . . .	$CHCl.(CO_2H)_2$ . . . . .	138.48	.....
32	naphthaline (α) . . . . .	$C_{10}H_7Cl$ . . . . .	162.51	1.2025 <sup>15</sup>
33	" (β) . . . . .	$C_{10}H_7Cl$ . . . . .	162.51	1.2656 <sup>16</sup>
34	nitro-benzene (o.) . . . . .	$ClC_6H_4.NO_2$ . . . . .	157.52	1.368 <sup>22</sup>
35	" (m.) . . . . .	$ClC_6H_4.NO_2$ . . . . .	157.52	1.534
36	" (p.) . . . . .	$ClC_6H_4.NO_2$ . . . . .	157.52	1.380 <sup>22</sup>
37	Chloral . . . . .	$CCl_3.CHO$ . . . . .	147.36	1.5121 <sup>19</sup>
38	hydrate . . . . .	$CCl_3.CH(CH)_2$ . . . . .	165.38	1.901
39	Chloroform . . . . .	$CHCl_3$ . . . . .	119.36	1.5264 <sup>1</sup>
40	Chlor-phenol (o.) . . . . .	$ClC_6H_4.OH$ . . . . .	128.49	.....
41	" m.) . . . . .	$ClC_6H_4.OH$ . . . . .	128.49	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. soluble	s. soluble	v. s. sol.	.....	.....	small moncl. prism /al.
2	.....	.....	.....	0°	236.5-7°	thick oil.....
3	insol.	insol.	insol.	.....	.....	amorphous..
4	insol.....	v. v. sol.	soluble *	82.5°	dec.	mic. need./al.
5	.....	soluble	.....	79°	.....	crystals.....
6	insol.	soluble	soluble	50°	344°	leaflets/al....
7	v. soluble	soluble	soluble	62.5-3.2°	185-7°	rhomb. tab..
8	v. soluble	v. soluble	v. soluble	62-3°	185-7°	rhomb. tab.
9	s. soluble	∞	∞	.....	119°	[or pris.
10	.....	.....	.....	.....	105-6°	.....
11	spon. comb.	.....	.....	.....	.....	.....
12	.....	.....	.....	.....	65°	.....
13	.....	.....	.....	< -14°	207°	.....
14	.....	.....	.....	.....	230° <sup>767</sup>	.....
15	.....	.....	.....	69.7°	230-1°	prisms.....
16	s. soluble	v. soluble	v. soluble	142.4°	.....	long need./w.
17	s. soluble	v. soluble	.....	132-3°	.....	needles.....
18	v. s. sol.	v. soluble	v. soluble	178.3°	.....	needles/et..
19	.....	soluble	.....	-44.9°	132°	.....
20	.....	.....	∞	-45°	131-2°	.....
21	0.11°	v. soluble	v. soluble	137°	.....	large needles.
22	0.04°	soluble	soluble	152°	sub.	small prisms.
23	0.02	v. soluble	v. soluble	236°	.....	scales.....
24	.....	sol. lig.	v. soluble	34°	267-8°	moncl. prisms
25	.....	.....	.....	89°	.....	.....
26	.....	.....	.....	75.5°	282°	pris. leaflets .
27	dec.	dec.	∞	.....	97-8°	.....
28	∞	∞	∞	.....	130-1°	.....
29	soluble	soluble	soluble	.....	127°	.....
30	dec.	.....	.....	.....	59.5°	.....
31	v. soluble	v. soluble	v. soluble	133°	.....	prisms .....
32	.....	soluble	.....	.....	263°	.....
33	.....	soluble	.....	56°	264-6° C. <sup>781</sup>	leaflets/al....
34	.....	soluble	.....	32.5°	243°	needles .....
35	v. sol. bz.	v. sol. hot	soluble	44.4°	235.6° C.	rhombic.....
36	.....	soluble	.....	83°	242°	rhombic leaf.
37	v. soluble	∞	∞	.....	97.7° C.	.....
38	v. soluble	v. soluble	sol. CS <sub>2</sub>	57°	97.5°	moncl. tab...
39	0.822 <sup>20</sup>	v. soluble	v. soluble	-70°	61.2° C.	.....
40	.....	soluble	.....	7°	175-6°	.....
41	.....	soluble	.....	28.5°	214°	crystals.....

\* v. sol. acetone, bz., chlo., and CS<sub>2</sub>.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Chlor-phenol (p.) . . . . .	$\text{ClC}_6\text{H}_4\text{OH}$ . . . . .	128.49	1.306 <sup>20</sup>
2	propionic ac. (α) . . . . .	$\text{CH}_3\text{CHCl.CO}_2\text{H}$ . . . . .	108.49	1.28 <sup>0</sup>
3	“ (β) . . . . .	$\text{CH}_2\text{Cl.CH}_2\text{CO}_2\text{H}$ . . . . .	108.49	.....
4	pyridine (2) . . . . .	$\text{C}_5\text{H}_4\text{ClN}$ . . . . .	113.52	.....
5	“ (4) . . . . .	$\text{C}_5\text{H}_4\text{ClN}$ . . . . .	113.52	.....
6	quinoline (py. 2) . . . . .	$\text{C}_9\text{H}_6\text{ClN}$ . . . . .	163.54	1.2754 <sup>17</sup>
7	“ (py. 4) . . . . .	$\text{C}_9\text{H}_6\text{ClN}$ . . . . .	163.54	1.3766 <sup>17</sup>
8	toluene (o.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.0807 <sup>2</sup>
9	“ “ (K.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.082 <sup>18</sup>
10	“ (m.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.0722 <sup>2</sup>
11	“ “ (K.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.074 <sup>18</sup>
12	“ (p.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.0697 <sup>2</sup>
13	“ “ (K.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.071 <sup>18</sup>
14	trinitro-benzene . . . . .	$\text{ClC}_6\text{H}_2(\text{NO}_2)_3$ . . . . .	247.48	1.790 <sup>22</sup>
15	Cholestrin . . . . .	$\text{C}_{26}\text{H}_{43}\text{OH} + \text{H}_2\text{O}$ . . . . .	390.37	1.067
16	Cholic acid . . . . .	$\text{C}_{24}\text{H}_{40}\text{O}_5 + \text{H}_2\text{O}$ . . . . .	426.34	.....
17	Chrysaniline . . . . .	$\text{C}_{19}\text{H}_{15}\text{N}_3 + 2\text{H}_2\text{O}$ . . . . .	321.28	.....
18	Chrysene . . . . .	$\text{C}_{18}\text{H}_{12}$ . . . . .	228.10	.....
19	Chrysine . . . . .	$\text{C}_{15}\text{H}_{10}\text{O}_4$ . . . . .	254.08	.....
20	Cincholic acid . . . . .	$\text{C}_7\text{H}_8\text{O}_6$ . . . . .	188.06	.....
21	Cinchomeric acid . . . . .	$3,4\text{C}_5\text{H}_3\text{N}(\text{CO}_2\text{H})_2$ . . . . .	167.08	.....
22	Cinnamic acid . . . . .	$\text{C}_6\text{H}_5\text{CH:CH.CO}_2\text{H}$ . . . . .	148.06	1.2475 <sup>4</sup>
23	Cinnamic aldehyde . . . . .	$\text{C}_6\text{H}_5\text{CH:CH.CHO}$ . . . . .	132.06	1.0497 <sup>4</sup>
24	“ “ (K.) . . . . .	$\text{C}_6\text{H}_5\text{CH:CH.CHO}$ . . . . .	132.06	1.048 <sup>18</sup>
25	“ anhydride . . . . .	$(\text{C}_9\text{H}_7\text{O})_2\text{O}$ . . . . .	278.12	.....
26	Cinnamyl alcohol . . . . .	$\text{C}_6\text{H}_5\text{CH:CH.CH}_2\text{OH}$ . . . . .	134.08	1.0440 <sup>2</sup>
27	chloride . . . . .	$\text{C}_9\text{H}_7\text{OCl}$ . . . . .	166.51	.....
28	Citraconic acid . . . . .	$\text{CH}_3\text{C}(\text{CO}_2\text{H})\text{:HC.CO}_2\text{H}$ . . . . .	130.05	1.617
29	anhydride . . . . .	$\text{C}_5\text{H}_4\text{O}_3$ . . . . .	112.03	1.250 <sup>15</sup>
30	Citral . . . . .	$\text{C}_9\text{H}_{15}\text{CHO}$ . . . . .	152.13	0.8972 <sup>15</sup>
31	Citramalic acid . . . . .	$\text{CO}_2\text{H.CH}_2\text{C}(\text{OH})(\text{CH}_3)$ $\text{CO}_2\text{H}$ . . . . .	148.06	.....
32	Citric acid . . . . .	$(\text{CO}_2\text{H.CH}_2)_2\text{C}(\text{OH})\text{CO}_2\text{H}$ $+ \text{H}_2\text{O}$ . . . . .	192.06	1.542
33	Collidine (α) . . . . .	$\text{CH}_3\text{C}_5\text{H}_3\text{N.C}_2\text{H}_5$ . . . . .	121.13	0.9268 <sup>16</sup>
34	“ (β) . . . . .	$\text{CH.C}_5\text{H}_3\text{N.C}_2\text{H}_5$ . . . . .	121.13	0.9656 <sup>0</sup>
35	“ (γ) . . . . .	$(\text{CH}_3)_3\text{C}_5\text{H}_2\text{N}$ . . . . .	121.13	0.917 <sup>15</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. s. sol.	v. soluble	v. soluble	37°	217°	crystals . . . . .
2	∞	∞	∞	.....	186°	.....
3	v. soluble	v. soluble	∞	41.5°	203-5°	leaflets . . . . .
4	v. s. sol.	.....	.....	.....	148° <sup>0743</sup>	.....
5	mod. sol.	.....	.....	.....	147-8°	.....
6	v. v. s. sol.	v. v. sol.	v. v. sol.	37-8°	275° <sup>0751</sup>	need./dil. al..
7	sol. HCl	v. v. sol.	v. v. sol.	34°	260-1° <sup>0744</sup>	.....
8	insol.	.....	.....	-34.0°	155°	.....
9	s. soluble	soluble	∞	-34°	158-9.5°	.....
10	.....	.....	.....	-47.8°	162° <sup>0756</sup>	.....
11	s. soluble	soluble	∞	-47°	160.5-2.5	.....
12	insol.	.....	.....	7.4°	162.3° <sup>0756</sup>	.....
13	s. soluble	soluble	∞	6.5-7.5°	160.5-2.5°	moncl.tab./e.
14	insol.	v. sol. hot	s. soluble	83°	.....	.....
15	insol.	11 <sup>78</sup>	18	148.5° C.	360° in vac.	need. or mon- oclinic tab.
16	0.025	4.8 <sup>700</sup> %	0.2 <sup>18</sup>	195°	dec. 160°	trimetric . . . . .
17	v. v. s. sol.	s. soluble	.....	267-70°	dist.	yel. need. . . . .
18	s. soluble	0.097 <sup>16</sup>	v. s. sol.	250°	subl.	scales or rhb.
19	v. v. s. sol.	2.0 <sup>78</sup> *	.....	275°	subl. need	yellow tab. . . . .
20	v. sol. hot	soluble	s. soluble	168-9°	.....	moncl.tab./w.
21	v. s. sol.	s. soluble	v. v. s. sol.	258-9°	.....	prisms HCl. . . . .
22	0.1 <sup>20</sup>	21 <sup>20</sup>	v. soluble	133°	300°	moncl. prisms
23	.....	soluble	.....	-7.5°	220-5° dec.	.....
24	.....	soluble	∞	-8°	{ 248-50° dec.	{ colorless to brownish
25	insol.	v. s. sol.	.....	130-5°	.....	crystals . . . . .
26	mod. sol.	v. soluble	v. soluble	33°	254° <sup>0747</sup>	long needles . . . . .
27	.....	.....	.....	35-6°	170° <sup>058</sup>	crystals . . . . .
28	245 <sup>15</sup>	.....	.....	80°	dec.	moncl. prisms
29	insol.	.....	.....	7°	213-4° C.	.....
30	insol.	.....	.....	.....	228-9°	oil . . . . .
31	deliq.	v. soluble	v. soluble	119°	dec. 200°	prisms . . . . .
32	133	75.9	2.26	153°	dec.	rhomb. pris. . . . .
33	sol. less sol. hot	v. soluble	v. soluble	.....	179-80°	.....
34	insol. [hot	soluble	.....	.....	195-6° <sup>0753</sup>	.....
35	sol.; insol.	.....	.....	.....	171-2°	.....

\* Very slightly soluble benzene, CS<sub>2</sub>, chloroform, and ligroin.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Collidine</b>			
1	dicarbonic acid.....	$(\text{CH}_3)_3\text{C}_5\text{N}(\text{CO}_2\text{H})_2$ .....	209.13	.....
2	<b>Coniferine</b> .....	$\text{C}_{16}\text{H}_{22}\text{O}_8 + 2\text{H}_2\text{O}$ .....	378.21	.....
3	<b>Coniine</b> (d.).....	$2, \text{C}_5\text{H}_8\text{N}.\text{C}_3\text{H}_7$ .....	127.18	0.846 <sup>12</sup>
4	<b>Coumaric acid</b> (o.).....	$\text{OHC}_6\text{H}_4\text{CH}:\text{CH}.\text{CO}_2\text{H}$	164.06	.....
5	“ “ (p.).....	$\text{OHC}_6\text{H}_4\text{CH}:\text{CH}.\text{CO}_2\text{H}$	164.06	.....
6	<b>Coumarin</b> .....	$\text{C}_9\text{H}_6\text{O}_2$ .....	146.05	.....
7	<b>Coumaron</b> .....	$\text{C}_8\text{H}_6\text{O}$ .....	118.05	1. +
8	<b>Creatine</b> .....	$\text{C}_4\text{H}_9\text{N}_3\text{O}_2 + \text{H}_2\text{O}$ .....	149.21	.....
9	<b>Creatinine</b> .....	$\text{C}_4\text{H}_7\text{N}_3\text{O}$ .....	113.18	.....
10	<b>Creosole</b> .....	$\text{CH}_3.\text{OC}_6\text{H}_3(\text{CH}_3)\text{OH}$ .....	138.08	1.1112 <sup>0</sup>
11	<b>Cresole</b> (o.).....	$\text{CH}_3.\text{C}_6\text{H}_4\text{OH}$ .....	108.06	1.0053 <sup>66</sup>
12	“ (m.).....	$\text{CH}_3.\text{C}_6\text{H}_4\text{OH}$ .....	108.06	1.0498 <sup>0</sup>
13	“ (p.).....	$\text{CH}_3.\text{C}_6\text{H}_4\text{OH}$ .....	108.06	0.9962 <sup>66</sup>
14	<b>Croconic acid</b> .....	$\text{CO}:\text{C}:(\text{CO}_2\text{H})_2 + 3\text{H}_2\text{O}$ .....	184.07	.....
15	<b>Crotonic acid</b> (α).....	$\text{CH}_3.\text{HC}:\text{CH}.\text{CO}_2\text{H}$ .....	86.05	1.018
16	“ “ (β).....	$\text{HCH}_2\text{C}:\text{CH}.\text{CO}_2\text{H}$ .....	86.05	1.0312 <sup>4</sup>
17	“ aldehyde (α).....	$\text{CH}_3.\text{HC}:\text{CH}.\text{CHO}$ .....	70.05	1.033 <sup>0</sup>
18	<b>Crotonyl ether</b> .....	$(\text{CH}_3\text{CH}:\text{CH}.\text{CH}_2)_2\text{O}$ .....	126.12	0.8895 <sup>0</sup>
19	alcohol.....	$\text{CH}_3\text{CH}:\text{CH}.\text{CH}_2\text{OH}$ .....	72.06	0.873 <sup>0</sup>
20	<b>Cumene</b> .....	$\text{C}_6\text{H}_5\text{CH}(\text{CH}_3)_2$ .....	120.10	0.8587 <sup>26</sup>
21	<b>Cuminic acid</b> .....	$(\text{CH}_3)_2\text{CH}.\text{C}_6\text{H}_4.\text{CO}_2\text{H}$ .....	164.10	1.1625 <sup>4</sup>
22	aldehyde.....	$(\text{CH}_3)\text{CHC}_6\text{H}_4\text{CHO}$ .....	148.10	0.9727 <sup>13</sup>
23	<b>Cyan-acetic acid</b> .....	$\text{CNCH}_2.\text{CO}_2\text{H}$ .....	85.07	.....
24	amide.....	$\text{CN}.\text{NH}_2$ .....	42.10	.....
25	anilid.....	$\text{CNNHC}_6\text{H}_5 + \frac{1}{2}\text{H}_2\text{O}$ .....	127.14	.....
26	aniline.....	$(\text{C}_6\text{H}_5.\text{NH}_2)_2(\text{CN})_2$ .....	238.28	.....
27	<b>Cyanic acid</b> .....	$\text{CONH}$ .....	43.05	1.140 <sup>0</sup>
28	<b>Cyanoform</b> .....	$\text{HC}(\text{CN})_3$ .....	91.13	.....
29	<b>Cyanogen</b> .....	$(\text{CN})_2$ .....	52.08	1.804(A): 0.866 <sup>17</sup>
30	bromide.....	$\text{CNBr}$ .....	106.00	.....
31	chloride.....	$\text{CNCl}$ .....	61.49	1. +
32	iodide.....	$\text{CNI}$ .....	153.01	.....
33	sulphide.....	$(\text{CN})_2\text{S}$ .....	84.14	.....
34	<b>Cyan-propionic acid</b> (α).....	$\text{CH}_3.\text{CHCN}.\text{CO}_2\text{H} + \frac{1}{2}\text{H}_2\text{O}$	126.11	.....
35	<b>Cyanuric acid</b> .....	$\text{C}_3\text{N}_3\text{H}_3\text{O}_3 + 2\text{H}_2\text{O}$ .....	165.19	1.768 <sup>0</sup>
36	<b>Cyclo-heptadiene</b> .....	$\text{C}_7\text{H}_{10}$ .....	94.08	0.893 <sup>8</sup>
37	hexanol.....	$(\text{CH}_2)_5:\text{CHOH}$ .....	100.10	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. s. sol.	v. s. sol.	v. s. sol.	no m.p.	.....	fine need./w..
2	0.51	soluble	insol.	185°	dec.	glit. needles .
3	1.1	∞	v. soluble	-2.5°	170°	.....
4	s. soluble	v. soluble	v. s. sol.	207-8°	dec.	long. needles.
5	v. s. sol.	v. soluble	v. soluble	206°	.....	silky need./w.
6	v. s. sol.	v. soluble	soluble	6.7°	290-0.5°	rhombic/et. .
7	insol.	.....	.....	< -18°	171-2 C. <sup>752</sup>	.....
8	1.35 <sup>18</sup>	0.008	insol.	dec.	.....	moncl. prisms
9	8.7 <sup>16</sup>	0.98 <sup>16</sup>	.....	dec.	.....	moncl. prisms
10	s. soluble	∞	∞ ; ∞ bz.	.....	221-2°	oil.....
11	s. soluble	soluble	soluble	30°	190.8°	crystals.....
12	s. soluble	soluble	soluble	3-4°	202.8°	.....
13	s. soluble	soluble	soluble	36°	201.8°	prisms.....
14	v. soluble	soluble	.....	.....	.....	yel. needles..
15	8.3	.....	.....	72°	185° C.	moncl. prisms
16	40	.....	.....	< -15°	169-9.3°	oil.....
17	mod. sol.	.....	.....	.....	104-5°	.....
18	.....	.....	.....	.....	143.5°	.....
19	.....	.....	.....	.....	117°	.....
20	insol.	soluble	soluble	.....	152.5-3°	.... [tab./al.
21	v. s. sol.	soluble	v. soluble	116.5°	subl.	triclin. pris. or
22	.....	.....	.....	.....	235°	.....
23	soluble	.....	soluble	55° or 65°	dec.	crystals.....
24	v. v. sol.	v. soluble	v. soluble	40°	.....	crystals.....
25	s. soluble	v. v. sol.	v. v. sol.	47°	.....	leaflets.....
26	insol.	s. soluble	s. soluble	210-20°	dec.	leaflets.....
27	soluble	.....	.....	.....	.....	.....
28	soluble	s. soluble	.....	183° dec.	.....	crystals.....
29	450 cc.	.....	.....	-34.4°	-20.7°	.....
30	.....	.....	.....	52°	61.3 <sup>750</sup>	needles.....
31	2500 cc.	10,000 cc.	5000 cc.	-5°	15.5°	.....
32	soluble	soluble	soluble	146.5°	.....	long needles .
33	v. soluble	soluble	v. soluble *	60°	sub. 30° +	{ rhomb. tab. or leaf.
34	v. soluble	v. soluble	.....	140° dec.	.....	amorphous ..
35	0.17 <sup>18</sup>	0.349	.....	.....	.....	monoclinic ..
36	.....	.....	.....	120-1°	.....	.....
37	3.56	.....	.....	16-7°	160-1° C.	needles.....

\* Very soluble carbon disulphide; mod. sol. chlo. and bz.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Cyclo-hexanone.....	$(\text{CH}_2)_5 : \text{CO}$ .....	98.08	0.9473 <sup>19</sup>
2	pentadiene.....	$\text{CH}_2 : (\text{CH} : \text{CH})_2$ .....	66.05	0.8047 <sup>19</sup>
3	pentene.....	$(\text{CH}_2)_5$ .....	68.06	.....
4	Cymene (o.).....	$\text{CH}_3 \cdot \text{C}_6\text{H}_4 \cdot \text{CH}_2 \cdot \text{CH}_2 \cdot \text{CH}_3$	134.12	.....
5	“ (m.).....	$\text{CH}_3 \cdot \text{C}_6\text{H}_4 \cdot \text{CH}_2 \cdot \text{CH}_2 \cdot \text{CH}_3$	134.12	0.863 <sup>16</sup>
6	“ (p.).....	$\text{CH}_3 \cdot \text{C}_6\text{H}_4 \cdot \text{CH} : (\text{CH}_3)_2$ .....	134.12	0.8525 <sup>25</sup>
7	“ “ (K.).....	$\text{CH}_3 \cdot \text{C}_6\text{H}_4 \cdot \text{CH} : (\text{CH}_3)_2$ .....	134.12	0.853 <sup>14</sup>
8	Dambose.....	$\text{C}_6\text{H}_6(\text{OH})_6$ .....	180.10	1.752
9	Deca-hydro-naphthaline	$\text{C}_{10}\text{H}_{18}$ .....	138.15	0.837 <sup>19</sup>
10	Decane (n.).....	$\text{CH}_3 \cdot (\text{CH}_2)_8 \cdot \text{CH}_3$ .....	142.18	0.730 <sup>20</sup>
11	Decyl alcohol.....	$\text{CH}_3 \cdot (\text{CH}_2)_8 \cdot \text{CH}_2\text{OH}$ .....	158.18	0.8297 <sup>19</sup>
12	Decylene (n.).....	$\text{CH}_3 \cdot (\text{CH}_2)_7 \cdot \text{CH} : \text{CH}_2$ .....	140.16	0.7630 <sup>0</sup>
13	Desoxalic acid.....	$\text{CO}_2\text{H} \cdot \text{CH}(\text{OH}) \cdot \text{C}(\text{OH}) \cdot (\text{CO}_2\text{H})_2$	194.05	.....
14	Dextrin.....	$\text{C}_{12}\text{H}_{20}\text{O}_{10}$ .....	324.16	1.0384
15	Diacetin.....	$(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot \text{C}_3\text{H}_5\text{OH}$ .....	176.10	.....
16	Diacetyl.....	$\text{CH}_3 \cdot \text{CO} \cdot \text{CO} \cdot \text{CH}_3$ .....	86.05	0.9734 <sup>22</sup>
17	Diacetylene.....	$\text{CH} : \text{C} : \text{C} : \text{CH}$ .....	50.02	.....
18	dicarbonic acid.....	$(\text{C} : \text{C} \cdot \text{CO}_2\text{H})_2 + \text{H}_2\text{O}$ .....	156.04	.....
19	Di-allyl.....	$(\text{CH}_2 : \text{CH} \cdot \text{CH}_2)_2$ .....	82.08	0.6905 <sup>21</sup>
20	carbinol.....	$(\text{C}_3\text{H}_5)_2\text{CHOH}$ .....	112.10	0.08752 <sup>0</sup>
21	Diallylene.....	$\text{C}_3\text{H}_5 \cdot \text{CH}_2 \cdot \text{C} : \text{CH}$ .....	80.06	0.8579 <sup>18</sup>
22	Diamino-triphenyl methane (pp.)	$\text{C}_6\text{H}_5\text{CH}(\text{C}_6\text{H}_4\text{NH}_2)_2$ .....	274.23	.....
23	Diazo-amino-benzene...	$\text{C}_6\text{H}_5 \cdot \text{N} \cdot \text{NH} \cdot \text{N} \cdot \text{C}_6\text{H}_5$ .....	197.21	.....
24	benzene chloride.....	$\text{C}_6\text{H}_5 \cdot \text{N}_2\text{Cl}$ .....	140.57	.....
25	“ nitrate.....	$\text{C}_6\text{H}_5 \cdot \text{N}_2\text{NO}_3$ .....	167.16	.....
26	“ sulphonic acid(o.)	$\text{C}_6\text{H}_4 : \text{N}_2\text{SO}_3$ .....	184.17	.....
27	“ “ “ (m.)	$\text{C}_6\text{H}_4 : \text{N}_2\text{SO}_3$ .....	184.17	.....
28	“ “ “ (p.)	$\text{C}_6\text{H}_4 : \text{N}_2\text{SO}_3$ .....	184.17	.....
29	methane.....	$\text{CH}_2 : \text{N}_2$ .....	42.08	.....
30	phenol (p.).....	$\text{C}_6\text{H}_4\text{N}_2\text{O} + 4\text{H}_2\text{O}$ .....	192.17	.....
31	Dibenzyl.....	$\text{C}_6\text{H}_5 \cdot \text{CH}_2 \cdot \text{CH}_2 \cdot \text{C}_6\text{H}_5$ .....	182.12	1.0423 <sup>52</sup>
32	amine.....	$\text{NH}(\text{CH}_2\text{C}_6\text{H}_5)_2$ .....	197.16	1.033 <sup>14</sup>
33	Dibrom-acetic acid.....	$\text{CHBr}_2 \cdot \text{CO}_2\text{H}$ .....	217.94	.....
34	anthracene.....	$\text{C}_6\text{H}_4 \cdot \text{C}_2\text{Br}_2 \cdot \text{C}_6\text{H}_4$ .....	335.98	.....
35	benzene (o.).....	$\text{C}_6\text{H}_4\text{Br}_2$ .....	235.95	1.977 <sup>18</sup>
36	“ (m.).....	$\text{C}_6\text{H}_4\text{Br}_2$ .....	235.95	1.955 <sup>19</sup>
37	“ (p.).....	$\text{C}_6\text{H}_4\text{Br}_2$ .....	235.95	2.220
38	Di-butyl carbonate.....	$(\text{C}_4\text{H}_9)_2\text{CO}_3$ .....	174.15	0.9244 <sup>20</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. soluble	.....	.....	-45°	155°	.....
2	.....	∞	.....	.....	42.5°	.....
3	.....	.....	.....	.....	45°	oil. ....
4	insol.	soluble	.....	.....	181-2°	.....
5	insol.	soluble	.....	.....	176-7.5°	.....
6	insol.	v. soluble	soluble	.....	175°	.....
7	insol.	s. soluble	soluble	-73.5°	174-6°	.....
8	s. soluble	ins. abs.	.....	225° C.	319° in vac.	monoclinic/w
9	.....	.....	.....	.....	173-80°	.....
10	.....	.....	.....	-30-32°	173° C.	.....
11	.....	soluble	.....	7°	231° C.	thick liquid..
12	.....	.....	.....	.....	172°	.....
13	v. soluble	v. soluble	.....	.....	dec.	cryst. mass...
14	v. soluble	insol.	.....	.....	.....	amorphous ..
15	∞	insol. CS <sub>2</sub>	∞	40°	259-61°	.....
16	25 <sup>15</sup>	.....	.....	.....	87.5-8°	yellow. ....
17	.....	.....	.....	.....	.....	.....
18	mod. sol.	v. soluble	v. soluble	177° exp.	.....	tab./al. + et.
19	insol.	.....	.....	.....	59.5° C.	.....
20	v. v. s. sol.	.....	.....	.....	151° C.	.....
21	.....	.....	.....	.....	70°	.....
22	v. v. s. sol.	v. soluble	v. soluble	139°	.....	warts. ....
23	insol.	soluble	v. soluble	96°	exp.	yellow leaf/al.
24	v. soluble	soluble	insol.	dec.	.....	needles .....
25	v. v. sol.	soluble	insol.	exp.	.....	needles. ....
26	.....	.....	.....	.....	.....	cryst. mass..
27	v. soluble	.....	.....	exp.	.....	red y. pris./w.
28	v. sol. <sup>60</sup>	insol.	.....	.....	.....	sm. need./w.
29	.....	.....	soluble	exp. 200°	0°	yellow. ....
30	v. soluble	v. soluble	s. soluble	38-9° exp.	.....	yellow need.
31	.....	mod. sol.	v. soluble	52°	284°	monoclinic...
32	insol.	v. soluble	v. soluble	.....	300°	.....
33	v. soluble	v. soluble	v. soluble	48°	232-4°	crystals. ....
34	sol. hot bz.	s. soluble	s. soluble	221°	subl.	yel. need./tol.
35	.....	soluble	.....	-1°	223.8° <sup>752</sup>	.....
36	.....	soluble	soluble	1-2°	219.4° <sup>758</sup>	.....
37	.....	soluble	.....	89.3° C.	219°	moncl. pris.
38	.....	.....	.....	.....	207.7° C.	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Di-butyl oxalate.....	$(C_4H_9)_2C_2O_4$ .....	202.15	1.010 <sup>0</sup>
2	Dichlor-acetamide.....	$CHCl_2.CONH_2$ .....	127.97	.....
3	acetic acid.....	$CHCl_2.CO_2H$ .....	128.92	1.5216 <sup>16</sup>
4	acetone.....	$CHCl_2.CO.CH_3$ .....	126.93	1.236 <sup>21</sup>
5	acetyl chloride.....	$CHCl_2.COCl$ .....	147.36	.....
6	aldehyde.....	$CHCl_2.CHO$ .....	112.92	.....
7	anthracene ( $\beta$ ).....	$C_{14}H_8Cl_2$ .....	246.96	.....
8	aniline (2, 4).....	$NH_2C_6H_3Cl_2$ .....	161.98	.....
9	" (2, 5).....	$NH_2C_6H_3Cl_2$ .....	161.98	.....
10	" (3, 4).....	$NH_2C_6H_3Cl_2$ .....	161.98	.....
11	" (3, 5).....	$NH_2C_6H_3Cl_2$ .....	161.98	.....
12	benzene (o.).....	$C_6H_4Cl_2$ .....	146.93	1.3254 <sup>0</sup>
13	" (m.).....	$C_6H_4Cl_2$ .....	146.93	1.307 <sup>0</sup>
14	" (p.).....	$C_6H_4Cl_2$ .....	146.93	1.4581 <sup>20</sup>
15	benzoic acid (2, 5).....	$Cl_2C_6H_3.CO_2H$ .....	190.93	.....
16	" " (2, 6).....	$Cl_2C_6H_3.CO_2H$ .....	190.93	.....
17	" " (3, 4).....	$Cl_2C_6H_3.CO_2H$ .....	190.93	.....
18	ether.....	$CH_2Cl.CHCl.O.C_2H_5$ .....	142.96	1.174 <sup>23</sup>
19	hydrine (1, 3).....	$CH_2Cl.CHOH.CH_2Cl$ .....	128.95	1.367 <sup>10</sup>
20	" (2, 3).....	$CH_2Cl.CHCl.CH_2OH$ .....	128.95	1.355 <sup>17.6</sup>
21	propane (2, 2).....	$CH_3.CCl_2.CH_3$ .....	112.95	1.827 <sup>16</sup>
22	stilbene.....	$C_{14}H_{10}Cl_2$ .....	248.98	.....
23	Diethyl-acetic acid.....	$(C_2H_5)_2HC.CO_2H$ .....	116.10	0.9196 <sup>19</sup>
24	amine.....	$(C_2H_5)_2NH$ .....	73.13	0.7226 <sup>4</sup>
25	" (K.).....	$(C_2H_5)_2NH$ .....	73.13	0.7028 <sup>11</sup>
26	aniline.....	$(C_2H_5)_2NCH_5$ .....	149.16	0.939 <sup>18</sup>
27	" (K.).....	$(C_2H_5)_2NC_6H_5$ .....	149.16	0.993 <sup>11</sup>
28	benzene (o.).....	$C_6H_4(C_2H_5)_2$ .....	134.12	0.8662 <sup>19</sup>
29	" (m.).....	$C_6H_4(C_2H_5)_2$ .....	134.12	0.8602 <sup>20</sup>
30	" (p.).....	$C_6H_4(C_2H_5)_2$ .....	134.12	0.8622 <sup>19</sup>
31	carbinol.....	$(C_2H_5)_2CHOH$ .....	88.10	0.8312 <sup>0</sup>
32	fumarate.....	$(C_2H_5)_2C_4H_2O_4$ .....	172.10	1.063 <sup>10</sup>
33	glutaconate.....	$(C_2H_5)_2C_5H_4O_4$ .....	186.12	.....
34	isosuccinate.....	$(C_2H_5)_2C_4H_4O_4$ .....	174.12	1.0213 <sup>16</sup>
35	itaconate.....	$(C_2H_5)_2C_5H_4O_4$ .....	186.12	1.0504 <sup>16</sup>
36	ketone.....	$C_2H_5.CO.C_2H_5$ .....	86.08	0.8335 <sup>2</sup>
37	" (K.).....	$C_2H_5.CO.C_2H_5$ .....	86.08	0.8140 <sup>11</sup>
38	maleate.....	$(C_2H_5)_2C_4H_2O_4$ .....	172.10	1.0740 <sup>16</sup>
39	malonic acid.....	$(C_2H_5)_2C.(CO_2H)_2$ .....	160.10	.....
40	mesaconate.....	$(C_2H_5)_2C_5H_4O_4$ .....	186.12	1.0492 <sup>16</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					243.4° C.	
2	v. sol. hot	v. soluble	v. soluble	98°	233-4° <sup>745</sup>	moncl. prisms
3	soluble	soluble	soluble	-4°	189-91°	
4	soluble				120°	
5					107-8°	
6	insol.				88-90°	
7	sol. bz.	s. soluble	s. soluble	209°		yel. needles..
8		soluble		63°	245° C.	need./dil. al..
9		soluble		50°	251°	needles/lig...
10	s. sol. lig.	soluble		71.5°	272°	needles/lig...
11		soluble		50.5°	259-60°	needles.....
12		soluble		< -14°	179°	
13		soluble		-18°	172° <sup>767</sup>	
14	v. sol. bz.	∞	v. soluble	53°	172°	mon.leaf./al..
15	0.09 <sup>11</sup>	soluble		156°	301°	needles/w. ..
16				126.5°		sm. needles..
17	v. s. sol.	v. s. sol.		201-2°	dist.	fine need./w..
18			∞		140-5°	
19	1.1 <sup>10</sup>				182°	
20					182°	
21					69.7°	[leaflets
22		v. sol. hot	v. soluble	170°		silk. need. or
23	s. soluble			< -15°	190° <sup>756</sup>	
24	v. soluble	soluble		-40°	55.5°	
25	soluble	soluble	soluble	-40°	55-7°	
26	insol.	soluble	soluble		213.5°	oil.....
27	insol.	soluble	∞	-38-9°	215.0-6.5	usually yel...
28				< -20°	184-4.5°	
29				< -20°	181-2°	
30	insol.	soluble	soluble	< -20°	182-3°	
31					116.5° <sup>753</sup>	
32					218.5° C.	
33					236-8°	
34					198.5-9.5	
35					227.8° C.	
36					101.08°	
37	4.1	∞	∞		101-2°	
38	4.1				223.03° C.	
39	65 <sup>16</sup>	v. soluble	v. soluble	121-5°		prisms.....
40					229° C.	

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Diethyl-mesoxalate . . . . .	$(\text{OH})_2\text{C}(\text{CO}_2\text{C}_2\text{H}_5)_2$ . . . . .	192.10	.....
2	phosphine . . . . .	$(\text{C}_2\text{H}_5)_3\text{PH}$ . . . . .	90.09	< 1
3	sulphite . . . . .	$(\text{C}_2\text{H}_5)_2\text{SO}_3$ . . . . .	138.14	1.1063 <sup>0</sup>
4	toluene (s.) . . . . .	$(\text{C}_2\text{H}_5)_2\text{C}_6\text{H}_3\text{CH}_3$ . . . . .	148.13	0.879 <sup>20</sup>
5	urea . . . . .	$\text{CO}(\text{NHC}_2\text{H}_5)_2$ . . . . .	116.18	1.0415
6	" (uns.) . . . . .	$\text{NH}_2\cdot\text{CO}\cdot\text{N}(\text{C}_2\text{H}_5)_2$ . . . . .	116.18	.....
7	Diethylene glycol . . . . .	$(\text{CH}_2\text{OH}\cdot\text{CH}_2)_2\text{O}$ . . . . .	106.08	1.132 <sup>0</sup>
8	Difluor benzene (p.) . . . . .	$\text{C}_6\text{H}_4\text{F}_2$ . . . . .	114.03	1.11
9	Diglycerine . . . . .	$\text{C}_6\text{H}_{14}\text{O}_5$ . . . . .	166.12	.....
10	Diglycolic acid . . . . .	$(\text{CO}_2\text{H}\cdot\text{CH}_2)_2\text{O} + \text{H}_2\text{O}$ . . . . .	152.07	.....
11	Diguanid . . . . .	$\text{NH}:\text{C}(\text{NH}_2)\text{NHC}$ $(\text{NH}_2):\text{NH}$	101.26	.....
12	Dihydro-anthracene . . . . .	$\text{C}_6\text{H}_4:(\text{CH}_2)_2:\text{C}_6\text{H}_4$ . . . . .	180.10	.....
13	benzaldehyde ( $\Delta$ 4, 6) . . . . .	$\text{C}_7\text{H}_8\text{O}$ . . . . .	108.06	1.0327 <sup>0</sup>
14	benzene (1, 2) . . . . .	$\text{C}_6\text{H}_6$ . . . . .	80.06	.....
15	naphthaline . . . . .	$\text{C}_{10}\text{H}_8$ . . . . .	130.08	.....
16	phthalic acid ( $\Delta$ 2, 4) . . . . .	$\text{o}\cdot\text{C}_6\text{H}_4(\text{CO}_2\text{H})_2$ . . . . .	168.06	.....
17	quinoline . . . . .	$\text{C}_9\text{H}_7\text{N}$ . . . . .	131.11	.....
18	resorcine . . . . .	$\text{C}_6\text{H}_6\text{O}_2$ . . . . .	112.06	.....
19	terephthalic ac. ( $\Delta$ 2, 6) . . . . .	$\text{C}_6\text{H}_4(\text{CO}_2\text{H})_2$ . . . . .	168.06	.....
20	toluene . . . . .	$\text{CH}_3\cdot\text{C}_6\text{H}_5$ . . . . .	94.08	.....
21	-xylene (o.) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_4$ . . . . .	108.10	.....
22	" (m.) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_4$ . . . . .	108.10	0.8275 <sup>20</sup>
23	" (p.) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_4$ . . . . .	108.10	.....
24	Dihydroxy-benzoic acid (2, 3)	$(\text{OH})_2\text{C}_6\text{H}_3\text{CO}_2\text{H} + 2\text{H}_2\text{O}$	190.08	.....
25	benzoic acid (2, 4) . . . . .	$(\text{OH})_2\text{C}_6\text{H}_3\text{CO}_2\text{H} + 3\text{H}_2\text{O}$	208.10	.....
26	" " (2, 5) . . . . .	$(\text{OH})_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ . . . . .	154.05	.....
27	" " (3, 5) . . . . .	$(\text{OH})_2\text{C}_6\text{H}_3\text{CO}_2\text{H} + 1\frac{1}{2}\text{H}_2\text{O}$	181.08	.....
28	benzophenone (2, 4) . . . . .	$(\text{C}_6\text{H}_4\text{OH})_2\text{CO}$ . . . . .	214.08	.....
29	" (3, 3') . . . . .	$(\text{C}_6\text{H}_4\text{OH})_2\text{CO}$ . . . . .	214.08	.....
30	" (4, 4') . . . . .	$(\text{C}_6\text{H}_4\text{OH})_2\text{CO}$ . . . . .	214.08	.....
31	butane (2, 3) . . . . .	$\text{CH}_3\cdot\text{CHOH}\cdot\text{CHOH}\cdot\text{CH}_3$	90.08	.....
32	naphthaline (1, 6) . . . . .	$(\text{OH})_2\text{C}_{10}\text{H}_6$ . . . . .	160.06	.....
33	" (1, 7) . . . . .	$(\text{OH})_2\text{C}_{10}\text{H}_6$ . . . . .	160.06	.....
34	" (1, 8) . . . . .	$(\text{OH})_2\text{C}_{10}\text{H}_6$ . . . . .	160.06	.....
35	" (2, 3) . . . . .	$(\text{OH})_2\text{C}_{10}\text{H}_6$ . . . . .	160.06	.....
36	" (2, 7) . . . . .	$(\text{OH})_2\text{C}_{10}\text{H}_6$ . . . . .	160.06	.....
37	pyridine . . . . .	$\text{C}_5\text{H}_5\text{N}(\text{OH})_2 + \frac{1}{2}\text{H}_2\text{O}$ . . . . .	120.09	.....
38	quinone (2, 5) . . . . .	$\text{C}_6\text{H}_2\text{O}_2(\text{OH})_2$ . . . . .	140.03	.....

\* Very soluble benzene and ligroin.

† V. sol. chlo., acetone, and hot benz.; v. s. sol.  $\text{CS}_2$  and lig.

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.	.....	.....	57°	abt. 200°	.....
2	.....	.....	.....	.....	85°	.....
3	.....	soluble	soluble	.....	161.3°	.....
4	.....	.....	.....	.....	199–200°	.....
5	v. soluble	v. soluble	v. soluble *	112.5°	263°	prisms.....
6	deliq.	v. soluble	v. soluble	70°	.....	prisms.....
7	soluble	soluble	soluble	.....	25.0°	.....
8	.....	.....	.....	.....	87–9°	.....
9	s. soluble	.....	insoluble	.....	220–30° <sup>10</sup>	thick liquid..
10	v. soluble	v. soluble	soluble	148°	decomp.	rhomb. pris. .
11	.....	.....	.....	.....	.....	amorphous ..
12	.....	v. soluble	v. soluble	108.5°	313°	moncl. tab...
13	.....	.....	.....	< –20°	170–1° dec.	oil.....
14	.....	.....	.....	.....	82°–85°	oil.....
15	.....	.....	.....	15.5°	212°	.....
16	soluble	soluble	s. soluble	21.5°	.....	moncl. tab...
17	.....	.....	.....	220–6°	.....	yellow.....
18	v. soluble	v. soluble	v. s. sol.†	104–6 sl.dec	.....	prisms/bz. ..
19	0.2 <sup>10</sup>	.....	.....	215°	.....	triclinic.....
20	.....	.....	.....	.....	105–8°	.....
21	.....	.....	soluble	.....	134–5°	.....
22	.....	.....	.....	.....	132–4°	.....
23	.....	.....	.....	.....	134–5°	.....
24	soluble	.....	.....	204°	decomp.	needles
25	0.263 <sup>17</sup>	v. soluble	v. soluble	204–6° dec.	decomp.	needles/eth..
26	sol. hot.	v. soluble	v. soluble	199–200°	decomp.	need. or pris..
27	mod. sol.	v. soluble	v. soluble	232–3°	.....	pris. or need..
28	s. sol. hot	sol. alk.	v.sol.sol.bz.	143–4°	.....	pyramid/bz..
29	soluble	soluble	sol. alk.	162–3°	.....	small needles
30	v. sol. hot	v. soluble	v. soluble ‡	210°	dist. undec.	yel. need./lig.
31	.....	.....	.....	.....	183–4°	.....
32	v. sol. bz.	s. soluble	v. soluble	134–5°	.....	short pris./bz.
33	mod. sol.	v. soluble	v. soluble	178°	.....	sm. need./bz.
34	v. sol. bz.	.....	v. soluble	140°	.....	need. or leaf..
35	sol. hot	v. soluble	v. soluble	159°	.....	rhombic/al...
36	sol. hot	v. soluble	v. sol. s. sol. CS <sub>2</sub>	130°	subl. pt. de.	long needles..
37	soluble	mod. sol.	v. s. sol.	225°	.....	yel. need./w..
38	v. v. s. sol.	v. soluble	v. s. sol.	no m.p.	sublimes	yel. needles..

‡ V. sol. acetone and alkalies ; v. s. sol. bz., chlo. and CS<sub>2</sub>.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Dihydroxy-</b>			
1	toluene (2, 5) . . . . .	$\text{CH}_3\text{C}_6\text{H}_4(\text{OH})_2$ . . . . .	124.06	.....
2	“ (2, 6) . . . . .	$\text{CH}_3\text{C}_6\text{H}_4(\text{OH})_2$ . . . . .	124.06	.....
3	“ (3, 4) . . . . .	$\text{CH}_3\text{C}_6\text{H}_4(\text{OH})_2$ . . . . .	124.06	.....
4	<b>Diiodo-acetic acid</b> . . . . .	$\text{CHI}_2\text{CO}_2\text{H}$ . . . . .	311.96	.....
5	acetylene . . . . .	$\text{IC}:\text{CI}$ . . . . .	277.94	.....
6	benzene (o.) . . . . .	$\text{C}_6\text{H}_4\text{I}_2$ . . . . .	329.97	.....
7	“ (m.) . . . . .	$\text{C}_6\text{H}_4\text{I}_2$ . . . . .	329.97	.....
8	“ (p.) . . . . .	$\text{C}_6\text{H}_4\text{I}_2$ . . . . .	329.97	.....
9	diacetylene . . . . .	$\text{IC}:\text{C}:\text{C}:\text{CI}$ . . . . .	301.94	.....
10	hexane (1, 6) . . . . .	$\text{ICH}_2(\text{CH}_2)_4\text{CH}_2\text{I}$ . . . . .	338.04	.....
11	<b>Diiso-amyl</b> . . . . .	$(\text{CH}_3)_2\text{CHCH}_2\text{CH}_2)_2$ . . . . .	142.18	$0.7358\frac{9.8}{4}$
12	amyl amine (K.) . . . . .	$[(\text{CH}_3)_2\text{CH}.\text{CH}_2.\text{CH}_2]_2\text{NH}$ . . . . .	157.22	$0.766\frac{11}{4}$
13	amyl carbonate . . . . .	$(\text{C}_5\text{H}_{11})_2\text{CO}_3$ . . . . .	202.18	$0.912\frac{15}{15}$
14	amyl ketone . . . . .	$(\text{C}_5\text{H}_{11})_2\text{CO}$ . . . . .	170.18	.....
15	butyl amine . . . . .	$(\text{C}_4\text{H}_9)_2\text{NH}$ . . . . .	129.20	$0.7491\frac{15}{15}$
16	butyl carbonate . . . . .	$(\text{C}_4\text{H}_9)_2\text{CO}_3$ . . . . .	174.15	$0.919\frac{15}{15}$
17	butylene . . . . .	$(\text{CH}_3)_2\text{C}:\text{CHC}(\text{CH}_3)_3$ . . . . .	112.13	$0.715\frac{25}{25}$
18	butyl oxalate . . . . .	$(\text{C}_4\text{H}_9)_2\text{C}_2\text{O}_4$ . . . . .	202.15	$1.002\frac{14}{14}$
19	propyl carbinol . . . . .	$[(\text{CH}_3)_2\text{CH}]_2\text{CHOH}$ . . . . .	116.13	$0.8288\frac{32}{32}$
20	propyl ketone . . . . .	$[(\text{CH}_3)_2\text{CH}]_2\text{CO}$ . . . . .	114.12	$0.8062\frac{32}{32}$
21	<b>Dimethyl amine</b> . . . . .	$(\text{CH}_3)_2\text{NH}$ . . . . .	45.10	$0.6865\frac{6}{6}$
22	“ “ (K.) . . . . .	$(\text{CH}_3)_2\text{NH}$ . . . . .	45.10	$0.6865\frac{5.8}{15}$
23	aniline . . . . .	$\text{C}_6\text{H}_5\text{N}(\text{CH}_3)_2$ . . . . .	122.13	$0.9575\frac{32}{32}$
24	“ (K.) . . . . .	$\text{C}_6\text{H}_5\text{N}(\text{CH}_3)_2$ . . . . .	122.13	$0.954\frac{11}{11}$
25	anthracene . . . . .	$(\text{CH}_3)_2\text{C}_{14}\text{H}_8$ . . . . .	206.12	.....
26	“ (2, 3) . . . . .	$(\text{CH}_3)_2\text{C}_{14}\text{H}_8$ . . . . .	206.12	.....
27	“ (2, 4) . . . . .	$(\text{CH}_3)_2\text{C}_{14}\text{H}_8$ . . . . .	206.12	.....
28	arsine . . . . .	$(\text{CH}_3)_2\text{AsH}$ . . . . .	106.06	.....
29	benzoic acid (2, 3) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{CO}_2\text{H}$ . . . . .	150.08	.....
30	“ “ (3, 4) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{CO}_2\text{H}$ . . . . .	150.08	.....
31	“ “ (2, 4) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{CO}_2\text{H}$ . . . . .	150.08	.....
32	“ “ (2, 6) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{CO}_2\text{H}$ . . . . .	150.08	.....
33	“ “ (2, 5) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{CO}_2\text{H}$ . . . . .	150.08	.....
34	carbonate . . . . .	$(\text{CH}_3)_2\text{CO}_3$ . . . . .	90.05	$1.069\frac{23}{23}$
35	ethyl acetic acid . . . . .	$(\text{CH}_3)_2(\text{C}_2\text{H}_5).\text{C}.\text{CO}_2\text{H}$ . . . . .	116.10	.....
36	benzene (s.) . . . . .	$\text{C}_2\text{H}_5.\text{C}_6\text{H}_3.(\text{CH}_3)_2$ . . . . .	134.12	$0.861\frac{20}{20}$
37	benzene (3, 4) . . . . .	$\text{C}_2\text{H}_5.\text{C}_6\text{H}_3.(\text{CH}_3)_2$ . . . . .	134.12	$0.8783\frac{20}{20}$
38	ethylene . . . . .	$(\text{CH}_3)_2\text{C}:\text{CH}.\text{C}_2\text{H}_5$ . . . . .	84.10	$0.687\frac{19}{19}$

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. v. sol.	v. v. sol.	v. v. sol.	124°	part. subl.	leaflets. . . . .
2	v. soluble	v. soluble	.....	63-6°	.....	needles. . . . .
3	v. soluble	v. soluble	v. soluble	103-4°	267-70°	.....
4	s. soluble	.....	.....	110°	.....	yel. crystals .
5	v. sol. lig.	.....	.....	82°	volatile	clear need./lig
6	.....	soluble	.....	27°	286.5 C. <sup>751</sup>	pris. or tab...
7	.....	soluble	.....	40.4°	284.7° <sup>756</sup>	{ rhomb. tab. /al. + et.
8	.....	soluble	.....	129.4°	285° C.	leaflets. . . . .
9	.....	.....	soluble	101°	.....	crystalline. . .
10	.....	.....	.....	6-7°	with steam	.....
11	.....	.....	.....	.....	159.5°	.....
12	s. soluble	soluble	∞	.....	185-9°	{ colorless to yellowish yellow oil. . . .
13	.....	.....	.....	.....	228.7° C.	
14	.....	.....	.....	.....	226°	
15	.....	.....	.....	.....	139-40°	.....
16	.....	.....	.....	.....	190.3° C.	.....
17	.....	.....	.....	.....	102.5° C. <sup>756</sup>	.....
18	.....	.....	.....	.....	229°	.....
19	v. s. sol.	soluble	soluble	.....	140°	.....[/bz.
20	sol. bz.	sol. toluene	.....	.....	123.7°	irreg. cryst.
21	soluble	soluble	.....	.....	7.2-7.3°	.....
22	v. soluble	v. soluble	soluble	.....	7-7.3°	.....
23	.....	soluble	.....	0.5°	195° <sup>768</sup>	.....
24	.....	soluble	∞	2-2.5°	192.5-3.5	yellowish. . . .
25	.....	.....	.....	231-2°	.....	.....
26	v. sol. bz.	.....	.....	246°	.....	fluoresc. leaf.
27	v. sol. bz.	mod. sol.	.....	71°	.....	fine need./al.
28	.....	.....	.....	.....	36-7°	.....
29	v. sol. hot	soluble	.....	144°	.....	glassy pris./al
30	v. v. s. sol.	v. s. sol.	.....	163°	.....	prisms/al. . . .
31	v. v. s. sol.	soluble	soluble	126°	268°	moncl. pris.
32	s. sol.	.....	.....	97-9°	.....	/al.-need./w.
33	v. s. sol. hot	v. soluble	.....	132°	268° C.	short need./w.
34	insol.	.....	.....	0.5°	89.70°	long need./al.
35	insol.	soluble	soluble	-14°	18.7°	.....
36	.....	.....	.....	< -20°	185°	.....
37	.....	.....	.....	.....	183-4°	.....
38	.....	.....	.....	.....	65-7° <sup>757</sup>	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
<b>Dimethyl-</b>				
1	fumarate . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_2\text{O}_4$ . . . . .	144.06	.....
2	isophthalate . . . . .	$(\text{CH}_3)_2\text{C}_8\text{H}_4\text{O}_4$ . . . . .	194.08	.....
3	isopropyl carbinol . . . . .	$(\text{CH}_3)_2(\text{C}_3\text{H}_7)\text{COH}$ . . . . .	102.12	0.8232 <sup>19</sup>
4	maleate . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_2\text{O}_4$ . . . . .	144.06	1.1529 <sup>14</sup>
5	malonic acid . . . . .	$(\text{CH}_3)_2\text{C}(\text{CO}_2\text{H})_2$ . . . . .	132.06	.....
6	naphthaline (1, 4) . . . . .	$(\text{CH}_3)_2\text{C}_{10}\text{H}_6$ . . . . .	156.10	1.1803 <sup>18</sup>
7	“ (β) . . . . .	$(\text{CH}_3)_2\text{C}_{10}\text{H}_6$ . . . . .	156.10	.....
8	α-naphthylamine . . . . .	$\text{C}_{10}\text{H}_7\text{N}(\text{CH}_3)_2$ . . . . .	171.15	1.0423 <sup>20</sup>
9	β- “ . . . . .	$\text{C}_{10}\text{H}_7\text{N}(\text{CH}_3)_2$ . . . . .	171.15	.....
10	nitros-amine . . . . .	$(\text{CH}_3)_2\text{N.NO}$ . . . . .	74.13	.....
11	pentene (2) (2, 3) . . . . .	$(\text{CH}_3)_2\text{C}:\text{C}(\text{CH}_3)\text{C}_2\text{H}_5$ . . . . .	98.12	0.7185 <sup>21</sup>
12	“ (2) (2, 4) . . . . .	$(\text{CH}_3)_2\text{C}:\text{CH.CH}(\text{CH}_3)_2$ . . . . .	98.12	0.6985 <sup>14</sup>
13	phosphine . . . . .	$(\text{CH}_3)_2\text{PH}$ . . . . .	62.06	< 1
14	phosphinic acid . . . . .	$(\text{CH}_3)_2\text{PO.OH}$ . . . . .	94.06	.....
15	phthalate . . . . .	$\text{o.C}_6\text{H}_4(\text{CO}_2\text{CH}_3)_2$ . . . . .	194.08	.....
16	propyl carbinol . . . . .	$(\text{CH}_3)_2\text{C}(\text{OH}).\text{C}_3\text{H}_7$ . . . . .	102.12	.....
17	quinone (2, 3) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_2\text{O}_2$ . . . . .	136.06	.....
18	“ (2, 6) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_2\text{O}_2$ . . . . .	136.06	.....
19	“ (2, 5) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_2\text{O}_2$ . . . . .	136.06	.....
20	racemate . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_4\text{O}_6$ . . . . .	178.08	.....
21	succinic acid (uns.) . . . . .	$(\text{CH}_3)_2\text{C}(\text{CO}_2\text{H})\text{CH}_2\text{CO}_2\text{H}$ . . . . .	146.08	.....
22	tartrate . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_4\text{O}_6$ . . . . .	178.08	1.3403 <sup>15</sup>
23	terephthalate . . . . .	$\text{p.C}_6\text{H}_4(\text{CO}_2\text{CH}_3)_2$ . . . . .	194.08	.....
24	thiophene (2, 4) . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_2\text{S}$ . . . . .	112.12	0.9956 <sup>20</sup>
25	“ (2, 5) . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_2\text{S}$ . . . . .	112.12	0.9859 <sup>18</sup>
26	trimethylene (1, 1) . . . . .	$(\text{CH}_3)_2\text{C}:(\text{CH}_2)_2$ . . . . .	70.08	0.6604 <sup>19</sup>
27	Dinaphthol (α) . . . . .	$\text{OH.C}_{10}\text{H}_6.\text{C}_{10}\text{H}_6\text{OH}$ . . . . .	286.12	.....
28	Dinaphthol (β) . . . . .	$\text{OH.C}_{10}\text{H}_6.\text{C}_{10}\text{H}_6\text{OH}$ . . . . .	286.12	.....
29	Dinaphthyl (αα) . . . . .	$(\text{C}_{10}\text{H}_7)_2$ . . . . .	254.12	.....
30	Dinaphthylmethane (α) . . . . .	$(\text{C}_{10}\text{H}_7)_2\text{CH}_2$ . . . . .	268.13	.....
31	“ (β) . . . . .	$(\text{C}_{10}\text{H}_7)_2\text{CH}_2$ . . . . .	268.13	.....
32	Dinicotinic acid . . . . .	$1:2:4\text{C}_5\text{H}_3\text{N}(\text{CO}_2\text{H})_2$ . . . . .	167.08	.....
33	Dinitraline (2, 4) . . . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{NH}_2$ . . . . .	183.16	.....
34	Dinitro-benzene (o.) . . . . .	$\text{C}_6\text{H}_4(\text{NO}_2)_2$ . . . . .	168.11	.....
35	“ (m.) . . . . .	$\text{C}_6\text{H}_4(\text{NO}_2)_2$ . . . . .	168.11	1.369 <sup>20</sup>
36	“ (p.) . . . . .	$\text{C}_6\text{H}_4(\text{NO}_2)_2$ . . . . .	168.11	.....
37	benzoic acid (2, 4) . . . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3.\text{CO}_2\text{H}$ . . . . .	212.11	.....



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	s. soluble	s. soluble	102°	192° C.	triclin. prisms
2	.....	.....	.....	64.5°	dist.	.....
3	soluble	soluble	.....	-14°	117.6°	.....
4	.....	.....	.....	.....	205° C.	.....
5	10	s. soluble	v. soluble	192-3° dec.	sub. 120 +	quadrat. pris.
6	.....	.....	.....	< -18°	262-4°	.....
7	.....	.....	.....	< -18°	264-6°	.....
8	insol.	soluble	soluble	.....	274.5° C. <sup>711</sup>	.....
9	.....	.....	.....	46°	305°	crystalline...
10	.....	.....	.....	.....	153° <sup>774</sup>	yellow oil....
11	.....	.....	.....	.....	75-80°	.....
12	.....	.....	.....	.....	83-4°	.....
13	insol.	.....	.....	.....	25°	.....
14	v. soluble	.....	.....	76°	.....	crystalline...
15	.....	.....	.....	.....	282°	.....
16	.....	soluble	.....	< -38°	123°	.....
17	s. soluble	mod. sol.	mod. sol.	55°	sublimes	yellow need..
18	.....	.....	.....	72-3°	.....	yel. needles..
19	s. sol. hot	s. soluble	v. soluble	125°	sublimes	tricl. pris. /al.
20	.....	soluble	.....	85°	282°	monoclinic/al
21	7.52 <sup>14</sup>	v. soluble	s. soluble	142°	165°→anh.	tricl. pris./bz.
22	.....	v. soluble	.....	48°	280°	crystalline...
23	0.33	.....	.....	140°	.....	trimetric need
24	.....	.....	.....	.....	137-8° C.	.....
25	.....	.....	.....	.....	136.5-7.5C.	.....
26	.....	.....	.....	.....	21°	.....
27	insol.	mod. sol.	v. soluble	v. soluble	300°	rhombic tab..
28	insol.	mod. sol.	v. soluble	218° C.	.....	flat need. or prisms
29	v. sol. bz.	mod. sol.	mod. sol.	154°	abt. 360°	rhomboidal..
30	sol. CHCl <sub>3</sub>	0.8 <sup>20</sup>	v. sol. bz.	109°	above 360°	short pris./al.
31	.....	v. soluble	sol. bz.	92°	.....	fine needles..
32	v. s. sol.	.....	.....	323°	decomp.	.....
33	insol.	0.7 <sup>21</sup>	.....	187.5-8°	.....	yel. moncl....
34	s. sol. hot	3.8 <sup>25</sup> : 33 <sup>78</sup> abs.	.....	117.9°	.....	needles/w....
35	.....	3.5 <sup>20.5</sup>	.....	91°	297° C.	thin rhb. tab.
36	s. sol. hot	0.4 <sup>20.5</sup>	*	171-2°	sublimes	moncl. need..
37	1.85 <sup>25</sup>	v. soluble	.....	179°	.....	rhomb. tab. or prisms

\* 0.69 parts dissolve in 100 parts methyl alcohol at 20°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Dinitro-</b>			
1	benzoic acid (2, 5).....	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ .....	212.11	.....
2	" " (2, 6).....	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ .....	212.11	.....
3	" " (3, 5).....	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ .....	212.11	.....
4	diphenyl (o.p.).....	$\text{NO}_2\text{C}_6\text{H}_4\cdot\text{C}_6\text{H}_4\text{NO}_2$ .....	244.14	.....
5	" (p.p.).....	$\text{NO}_2\text{C}_6\text{H}_4\cdot\text{C}_6\text{H}_4\text{NO}_2$ .....	244.14	.....
6	methane.....	$\text{CH}_2(\text{NO}_2)_2$ .....	106.10	.....
7	phenol (2, 3).....	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{OH}$ .....	184.11	.....
8	" (2, 4).....	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{OH}$ .....	184.11	.....
9	" (2, 6).....	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{OH}$ .....	184.11	.....
10	toluene (2, 4).....	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CH}_3$ .....	182.13	1.3208 <sup>o</sup>
11	" (3, 4).....	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CH}_3$ .....	182.13	1.32
12	" (3, 5).....	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CH}_3$ .....	182.13	.....
13	Dioxindole.....	$\text{C}_8\text{H}_7\text{NO}_2$ .....	149.10	.....
14	Diphenol (α).....	$\text{OHC}_6\text{H}_4\cdot\text{C}_6\text{H}_4\text{OH}$ .....	186.08	.....
15	" (β).....	$\text{OHC}_6\text{H}_4\cdot\text{C}_6\text{H}_4\text{OH}$ .....	186.08	.....
16	" (γ).....	$\text{OHC}_6\text{H}_4\cdot\text{C}_6\text{H}_4\text{OH}$ .....	186.08	.....
17	" (δ).....	$\text{OHC}_6\text{H}_4\cdot\text{C}_6\text{H}_4\text{OH}$ .....	186.08	.....
18	Diphenyl.....	$\text{C}_6\text{H}_5\cdot\text{C}_6\text{H}_5$ .....	154.08	1.165
19	acetic acid.....	$(\text{C}_6\text{H}_5)_2\text{CH}\cdot\text{CO}_2\text{H}$ .....	212.10	.....
20	anime.....	$(\text{C}_6\text{H}_5)_2\text{NH}$ .....	169.13	1.159
21	benzene (p.).....	$\text{C}_6\text{H}_5\cdot\text{C}_6\text{H}_4\cdot\text{C}_6\text{H}_5$ .....	230.12	.....
22	diacetylene.....	$\text{C}_6\text{H}_5\cdot\text{C}\equiv\text{C}\cdot\text{C}_6\text{H}_5$ .....	202.08	.....
23	ethane (u.).....	$\text{CH}_3\cdot\text{CH}(\text{C}_6\text{H}_5)_2$ .....	182.12	.....
24	hydrazine (aa).....	$(\text{C}_6\text{H}_5)_2\text{N}\cdot\text{NH}_2$ .....	184.18	.....
25	methane.....	$(\text{C}_6\text{H}_5)_2\text{CH}_2$ .....	168.10	.....
26	phosphine.....	$(\text{C}_6\text{H}_5)_2\text{PH}$ .....	186.09	1.0126 <sup>1/2</sup>
27	o. tolyl-methane.....	$(\text{C}_6\text{H}_5)_2\text{CH}\cdot\text{C}_6\text{H}_4\cdot\text{CH}_3$ .....	258.15	1.071 <sup>6</sup>
28	urea (uns.).....	$\text{NH}_2\cdot\text{CO}\cdot\text{N}(\text{C}_6\text{H}_5)_2$ .....	212.18	.....
29	Diphenylene oxide.....	$<(\text{C}_6\text{H}_4)_2\text{O}$ .....	168.08	.....
30	Dipicolinic acid.....	$1:2:6\text{C}_5\text{H}_3\text{N}(\text{CO}_2\text{H})_2$ + $1\frac{1}{2}\text{H}_2\text{O}$ .....	194.07	.....
31	Dipropargyl.....	$\text{CH}\equiv\text{C}\cdot\text{CH}_2\cdot\text{CH}_2\cdot\text{C}\equiv\text{CH}$ .....	78.05	0.8049 <sup>2/3</sup>
32	Dipropyl amine.....	$(\text{C}_3\text{H}_7)_2\text{NH}$ .....	101.16	0.7357 <sup>25</sup>
33	" (K.).....	$(\text{C}_3\text{H}_7)_2\text{NH}$ .....	101.16	0.736 <sup>1/2</sup>
34	carbinol.....	$(\text{C}_3\text{H}_7)_2\text{CHOH}$ .....	116.13	0.8200 <sup>20</sup>
35	ketone.....	$(\text{C}_3\text{H}_7)_2\text{CO}$ .....	114.12	0.8205 <sup>15.1/4</sup>
36	" (K.).....	$(\text{C}_3\text{H}_7)_2\text{CO}$ .....	114.12	0.822 <sup>1/2</sup>
37	oxalate.....	$(\text{C}_3\text{H}_7)_2\text{C}_2\text{O}_4$ .....	174.12	1.0384 <sup>o</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	s. sol. hot	.....	.....	177°	.....	needles
2	mod.sol. hot	.....	.....	202° dec.	.....	needles
3	2.0 <sup>100</sup>	v. soluble	s. soluble	204-5°	.....	quad. tab./w.
4	.....	v. sol. hot	.....	93.5°	.....	moncl. need.
5	.....	mod.sol.hot	.....	233°	.....	fine needles..
6	.....	.....	.....	exp. 100°	.....	yel. crystals.
7	s. soluble	soluble	v. soluble	144°	.....	yel. need/w..
8	0.5	3.9 <sup>19</sup>	v. soluble	113-4°	.....	yel. tab./w...
9	s. soluble	soluble	v. soluble	61.78°	.....	short yel. need./w.
10	insol.	s. soluble	2.19 <sup>17</sup> CS <sub>2</sub>	70.5°	.....	moncl. need..
11	insol.	soluble	2.19 <sup>17</sup> CS <sub>2</sub>	60°	.....	long need.CS <sub>2</sub>
12	s. soluble	mod. sol.	v. soluble mod.sol.CS <sub>2</sub>	92-3°	with steam	moncl. pris. /lig.
13	8.3	6.6	sol. alk.	180°	dec. 195°	rhomb. pris..
14	mod.sol. hot	v. soluble	v. soluble	123°	.....	long flat need.
15	s. soluble	v. soluble	v. soluble	190°	.....	small leaflets.
16	s. soluble	v. soluble	v. soluble	272°	sublimes	glit. leaf./al.
17	v. s. sol.	v. soluble	v. soluble	161°	342°	need. or mon. prisms
18	insol.	9.98	soluble	70.5°	254.6 C.	moncl. tab...
19	s. soluble	v. soluble	v. soluble	148°	part. sub.	needles/w....
20	s. soluble	soluble	soluble	54°	310°	moncl. leaf...
21	sol. hot bz.	v. s. sol.	s. soluble	205°	383-427°	small leaflets
22	.....	v. soluble	v. soluble	88°	.....	need. dil. al.
23	.....	.....	.....	.....	286°	oil.....
24	v. s. sol.	v. soluble	v. soluble	34.5°	220°/ <sup>40</sup>	moncl./lig. ..
25	insol.	v. soluble	v. soluble	26-7°	261-2°	prismat. need
26	insol.	v. soluble	v. soluble	.....	280°	oil.....
27	sol. bz.	s. soluble	v. soluble	59.5°	254°	irreg. prisms.
28	.....	.....	.....	189°	.....	long needles .
29	insol.	mod. sol.	v. soluble	86-7°	287-8°	small. leaf./al
30	sol. hot	v. s. sol.	.....	226° dec.	.....	{ crusts,scales or needles
31	.....	.....	v. soluble	-6°	86-7°	.....
32	s. soluble	.....	.....	< -50°	109.4-10.4	.....
33	soluble	∞	soluble	.....	109.5-10.5	colorless.....
34	.....	soluble	soluble	.....	154°	.....
35	insol.	.....	.....	.....	143.52°	.....
36	insol.	∞	∞	.....	141-3°	colorless.....
37	.....	.....	.....	.....	213.5° C.	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Dipyridyl $\gamma$ . . . . .	$C_5H_4N.C_5H_4N$ . . . . .	156.16	.....
2	Diquinoline . . . . .	$C_9H_7N.C_2H_7N$ . . . . .	258.20	.....
3	Diquinoyl (2, 3 <sup>1</sup> ) . . . . .	$C_9H_6N.C_9H_6N$ . . . . .	256.18	.....
4	“ (6, 6 <sup>1</sup> ) . . . . .	$C_9H_6N.C_9H_6N$ . . . . .	256.18	.....
5	“ (7, 2 <sup>1</sup> ) . . . . .	$C_9H_6N.C_9H_6N$ . . . . .	256.18	.....
6	Diresorcine . . . . .	$(OH)_2C_6H_3.C_6H_3.(OH)_2$ + 2H <sub>2</sub> O	254.12	.....
7	Dithio-glycerine . . . . .	$C_3H_5(OH)(SH)_2$ . . . . .	124.18	1.342 <sup>14.4</sup>
8	Ditolyl (o.) . . . . .	$CH_3.C_6H_4.C_6H_4.CH_3$ . . . . .	182.12	.....
9	“ (o.m.) . . . . .	$CH_3.C_6H_4.C_6H_4.CH_3$ . . . . .	182.12	0.9993 <sup>12</sup>
10	“ (m.) . . . . .	$CH_3.C_6H_4.C_6H_4.CH_3$ . . . . .	182.12	.....
11	“ (p.p.) . . . . .	$CH_3.C_6H_4.C_6H_4.CH_3$ . . . . .	182.12	0.9172 <sup>121</sup>
12	amine (o.) . . . . .	$(CH_3C_6H_4)_2NH$ . . . . .	197.16	.....
13	“ (m.) . . . . .	$(CH_3C_6H_4)_2NH$ . . . . .	197.16	.....
14	“ (p.) . . . . .	$(CH_3C_6H_4)_2NH$ . . . . .	197.16	.....
15	Docosane . . . . .	$CH_3.(CH_2)_{20}.CH_3$ . . . . .	310.37	0.7782 <sup>4</sup>
16	Dodecane, n. . . . .	$CH_3.(CH_2)_{10}.CH_3$ . . . . .	170.22	0.7548 <sup>15</sup>
17	Dodecylene, n . . . . .	$C_{12}H_{24}$ . . . . .	168.20	0.7620 <sup>12</sup>
18	Dulcite . . . . .	$C_6H_8(OH)_6$ . . . . .	182.12	1.466 <sup>15</sup>
19	Durol . . . . .	1: 2: 4: 5C <sub>6</sub> H <sub>2</sub> (CH <sub>3</sub> ) <sub>4</sub> . . . . .	134.12	.....
20	Elaidic acid . . . . .	$C_{14}H_{29}HC:HC.CH_2.CO_2H$ . . . . .	282.28	.....
21	Ellagic acid . . . . .	$C_{14}H_6O_8 + 2H_2O$ . . . . .	338.08	1.667 <sup>18</sup>
22	Eosine . . . . .	$C_{20}H_8Br_4O_5$ . . . . .	647.90	.....
23	$\alpha$ -Epichlorhydrine . . . . .	$C_3H_5ClO$ . . . . .	92.49	1.2031 <sup>2</sup>
24	Erucic acid . . . . .	$C_{21}H_{41}.CO_2H$ . . . . .	338.34	.....
25	Erythrite . . . . .	$(CH_2OH.CHOH.)_2$ . . . . .	122.08	1.59
26	anhydride . . . . .	$C_4H_6O_2$ . . . . .	86.05	1.1132 <sup>18</sup>
27	Ethane . . . . .	$CH_3.CH_3$ . . . . .	30.05	{ 0.446 <sup>0</sup> liq. 1.036 gas
28	Ether . . . . .	$C_2H_5OC_2H_5$ . . . . .	74.08	0.7183 <sup>17</sup>
29	Ethoxy-benzoic acid (o.) . . . . .	$C_2H_5O.C_6H_4.CO_2H$ . . . . .	166.08	.....
30	“ “ (m.) . . . . .	$C_2H_5O.C_6H_4.CO_2H$ . . . . .	166.08	.....
31	“ “ (p.) . . . . .	$C_2H_5O.C_6H_4.CO_2H$ . . . . .	166.08	.....
32	Ethyl acetate . . . . .	$CH_3CO_2.C_2H_5$ . . . . .	88.06	0.90286 <sup>18.5</sup> <sub>4</sub>
33	“ “ (K.) . . . . .	$CH_3CO_2.C_2H_5$ . . . . .	88.06	{ 0.8920— 0.8955 <sup>11</sup>
34	acetoacetate . . . . .	$CH_3CO.CH_2.CO_2.C_2H_5$ . . . . .	130.08	1.0282 <sup>12</sup>
35	acetylene . . . . .	$C_2H_2$ . . . . .	54.05	.....
36	acrylate . . . . .	$C_3H_3O_2.C_2H_5$ . . . . .	100.06	0.9393 <sup>0</sup>
37	alcohol . . . . .	$C_2H_5.OH$ . . . . .	46.05	0.7937 <sup>12</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. s. sol.	v. soluble	v. soluble	111-2°	304.8°	need. or tab..
2	insol.	v. soluble	v. soluble	114°	.....	yel. needles..
3	insol.	v. soluble	mod. sol.	176-7°	> 400°	{ moncl. tab. and need.
4	v. s. sol. hot	v. s. sol.	v. s. sol.	178°	dist.	mon. tab./al.
5	insol.	v. s. sol.	s. soluble	192.5°	sublimes	mon. tab./al.
6	s. soluble	.....	soluble	310°	.....	{ cryst. pow. or need.
7	insol.	v. sol. abs.	insol.	.....	dec. 130°	thick liquid..
8	.....	.....	.....	.....	272°	.....
9	.....	v. soluble	v. soluble	.....	288°	.....
10	.....	.....	.....	.....	280-1°	.....
11	.....	soluble	soluble	121°	dist.	moncl. pris.
12	.....	.....	.....	.....	312° <sup>727</sup>	/et.
13	.....	v. soluble	v. soluble	< -12°	319-20°	.....
14	.....	.....	.....	79°	330.5°	long needles .
15	.....	.....	.....	44.4°	244.5° <sup>15</sup>	.....
16	.....	.....	.....	-12°	214.5° C.	.....
17	.....	.....	.....	-31.5°	213-5°	.....
18	3.2 <sup>15</sup>	0.7	insol.	188.5°	dec.	moncl. prisms
19	.....	v. soluble	v. soluble	79-80°	193-5°	crystalline...
20	insol.	soluble	soluble	51.5°	234° <sup>15</sup>	leaflets/al....
21	v. s. sol. hot	s. soluble	insol.	decompose	.....	yel. cryst. po.
22	insol.	soluble	sol. acet. ac	.....	.....	moncl. need..
23	insol.	.....	.....	.....	116° C.	.....
24	.....	v. soluble	.....	33-4°	281° <sup>30</sup>	needles/al. .
25	v. soluble	s. soluble	insol.	126°	329-31°	quadrat. pris
26	∞ dec.	.....	.....	.....	138°	.....
27	.....	46 c.c. <sup>4</sup>	.....	-171.4°	-85.4° <sup>749</sup>	.....
28	7.487 <sup>20</sup>	∞	∞	-112.6°	34.97°	.....
29	s. soluble	.....	.....	19.4°	.....	oil .....
30	s. sol. hot	.....	.....	137°	sub.	small needles
31	v. v. s. sol.	.....	.....	195°	.....	needles.....
32	6	∞	∞	-83.8°	77.4° C. <sup>754</sup>	.....
33	5.9 <sup>17.5</sup>	∞	∞	-83.8°	76-7°	colorless.....
34	s. soluble	.....	.....	< -80°	181°	.....
35	.....	.....	.....	.....	18° C.	.....
36	.....	.....	.....	.....	98.5° C.	.....
37	∞	.....	∞	-112.3°	78.4°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Ethyl</b>			
1	allyl ether . . . . .	$C_2H_5.O.C_3H_5$ . . . . .	86.08	.....
2	amine . . . . .	$C_2H_5NH_2$ . . . . .	45.10	0.6994 <sup>8</sup>
3	amyl ketone . . . . .	$C_2H_5.CO.C_3H_5$ . . . . .	128.13	0.850 <sup>0</sup>
4	aniline . . . . .	$C_2H_5.NH.C_5H_5$ . . . . .	121.13	0.954 <sup>18</sup>
5	anthracene . . . . .	$C_{14}H_{10}$ . . . . .	206.12	.....
6	anisate . . . . .	$CH_3O.C_6H_4.CO_2C_2H_5$ . . . . .	180.10	.....
7	arsenate . . . . .	$(C_2H_5)_3AsO_4$ . . . . .	226.12	1.3264 <sup>0</sup> . . . . .
8	arsenite . . . . .	$(C_2H_5)_3AsO_3$ . . . . .	210.12	1.224 <sup>8</sup> . . . . .
9	benzene . . . . .	$C_6H_6$ . . . . .	106.08	0.8760 <sup>10</sup>
10	benzoate . . . . .	$C_6H_5.CO_2.C_2H_5$ . . . . .	150.08	1.0502 <sup>16</sup>
11	“ (K.) . . . . .	$C_6H_5.CO_2.C_2H_5$ . . . . .	150.08	1.054 <sup>18</sup>
12	benzoic acid (o.) . . . . .	$C_6H_4(CO_2H)_2$ . . . . .	150.08	.....
13	“ “ (m.) . . . . .	$C_6H_4(CO_2H)_2$ . . . . .	150.08	.....
14	“ “ (p.) . . . . .	$C_6H_4(CO_2H)_2$ . . . . .	150.08	.....
15	benzyl ether . . . . .	$C_2H_5.O.CH_2.C_6H_5$ . . . . .	136.10	.....
16	“ ketone . . . . .	$C_2H_5.CO.CH_2.C_6H_5$ . . . . .	148.10	0.998 <sup>17.5</sup>
17	borate . . . . .	$(C_2H_5)_3BO_3$ . . . . .	146.12	0.887 <sup>0</sup>
18	bromide . . . . .	$C_2H_5Br$ . . . . .	109.00	1.4499 <sup>15</sup>
19	“ Phg. IV (K.) . . . . .	$C_2H_5Br$ . . . . .	109.00	1.453–1.457 <sup>18</sup>
20	butyl ether . . . . .	$C_2H_5.O.C_4H_9$ . . . . .	102.12	0.7522 <sup>20</sup>
21	n. butyl ketone . . . . .	$C_2H_5.CO.C_4H_9$ . . . . .	114.12	.....
22	butyrate . . . . .	$C_3H_7.CO_2.C_2H_5$ . . . . .	116.10	0.8978 <sup>18</sup>
23	caprate . . . . .	$C_9H_{19}.CO_2.C_2H_5$ . . . . .	200.20	0.862
24	caproate . . . . .	$C_5H_{11}.CO_2.C_2H_5$ . . . . .	144.13	0.8732 <sup>20</sup>
25	caprylate . . . . .	$C_7H_{15}.CO_2.C_2H_5$ . . . . .	172.16	0.8730 <sup>16</sup>
26	carbonate . . . . .	$(C_2H_5)_2CO_3$ . . . . .	118.08	0.9780 <sup>20</sup>
27	chloracetate . . . . .	$CH_2Cl.CO_2.C_2H_5$ . . . . .	122.51	1.1585 <sup>20</sup>
28	chlorcarbonate . . . . .	$ClCO_2.C_2H_5$ . . . . .	108.59	1.139 <sup>15</sup>
29	chloride . . . . .	$C_2H_5Cl$ . . . . .	64.49	0.9214 <sup>0</sup>
30	cinnamate . . . . .	$C_6H_5.C_2H_2CO_2.C_2H_5$ . . . . .	176.10	1.0662 <sup>0</sup>
31	“ (K.) . . . . .	$C_6H_5.C_2H_2CO_2.C_2H_5$ . . . . .	176.10	1.049 <sup>18</sup>
32	collidinedicarbonate . . . . .	$C_8H_9N(CO_2C_2H_5)_2$ . . . . .	265.20	1.087 <sup>15</sup>
33	cyanate . . . . .	$C:N.O.C_2H_5$ . . . . .	71.08	1.1272 <sup>15</sup>
34	cyanide . . . . .	$C_2H_5.CN$ . . . . .	55.08	0.7937 <sup>18</sup>
35	cyancarbonate . . . . .	$CN.CO_2.C_2H_5$ . . . . .	99.04	1.0139
36	diaceto-acetate . . . . .	$(CH_3CO)_2CH.CO_2.C_2H_5$ . . . . .	172.10	1.101 <sup>15</sup>
37	diazoacetate . . . . .	$C_2HN_2O_2.C_2H_5$ . . . . .	114.13	1.083 <sup>24</sup>
38	dichloracetate . . . . .	$CHCl_2.CO_2.C_2H_5$ . . . . .	156.95	1.2821 <sup>20</sup>
39	diphenylamine . . . . .	$C_2H_5N(C_6H_5)_2$ . . . . .	197.16	.....
40	disulphide . . . . .	$(C_2H_5)_2S_2$ . . . . .	122.20	0.9927 <sup>20</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					66-7 <sup>0742</sup>	
2	∞	∞	∞	-85.2°	18.7°	
3					170°	
4					206°	
5		soluble		60-1°		leaflets/al....
6				7°	269-5°	
7 dec.					235-8°	
8 dec.					165-6°	
9 insol.		∞	∞		136.5	
10 s. sol. hot		soluble	soluble		211.2° C.	
11 s. sol. hot		soluble	∞		209-12°	faint yellow
12				68°		fine flat need.
13 v. v. sol.				47°		long need./w.
14 sol. hot		v. soluble	v. soluble	112-3°		leaflets
15					185°	
16					223-6°	
17					120°	
18 0.914 <sup>30</sup>		∞	∞	-116°	38.37°	
19 s. soluble		∞	∞	125.5°	38-40°	colorless....
20					91.4°	
21					147-8 <sup>0742</sup>	
22 s. soluble		soluble	soluble		119.9°	
23					244°	
24 insol.		soluble	soluble		166.6°	
25				-48°	205.8°	
26		soluble			125.8° C.	
27 insol.					144.5 <sup>0764</sup>	
28 decomp.					94°	
29 2		∞	∞		12.5°	
30		soluble		12°	271°	
31		soluble	∞	7.5°	270-1° dec.	yellowish
32					308-10°	thick yel. oil.
33 insol.		∞	∞			
34 mod. sol.				-103.5°	97.08° C.	
35 insol.		soluble	soluble		115-6°	
36 s. soluble					200-5° dec	
37 s. soluble		∞	∞	-22°	140-1 <sup>0730</sup>	oil....
38					157.7 <sup>0755</sup>	
39		soluble			295-7°	
40					153° C <sup>730</sup>	oil....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Ethyl fluoride . . . . .	$C_2H_5F$ . . . . .	48.04	1.7
2	formate . . . . .	$HCO_2.C_2H_5$ . . . . .	74.05	0.9376 <sup>‡</sup>
3	" (K.) . . . . .	$HCO_2.C_2H_5$ . . . . .	74.05	0.920 <sup>‡</sup>
4	glutaconate . . . . .	$C_5H_4O_4(C_2H_5)_2$ . . . . .	186.12	1.0499 <sup>‡</sup>
5	glycerate . . . . .	$C_2H_3(OH)_2.CO_2.C_2H_5$ . . . . .	134.08	1.093 <sup>6</sup>
6	glyceryl ether . . . . .	$CH_2OH.CHOH.CH_2O$ $C_2H_5$ . . . . .	120.10	.....
7	glycol ether . . . . .	$HOCH_2.CH_2O.C_2H_5$ . . . . .	90.08	0.926 <sup>13</sup>
8	glycollate . . . . .	$HOCH_2.CO_2.C_2H_5$ . . . . .	104.06	1.0826 <sup>23</sup>
9	heptyl ether . . . . .	$C_7H_5.O.C_2H_5$ . . . . .	144.16	0.7949 <sup>0</sup>
10	hexyl ether . . . . .	$C_2H_5.O.C_6H_{13}$ . . . . .	130.15	.....
11	hydrazine . . . . .	$C_2H_5NH.NH_2$ . . . . .	60.14	.....
12	hydrocollidine dicar- bonate	$C_{10}H_{11}NO_4(C_2H_5)_2$ . . . . .	267.21	.....
13	hydroxylamine . . . . .	$C_2H_5NHOH$ . . . . .	61.10	0.8827 <sup>7.5</sup>
14	hypochlorite . . . . .	$C_2H_5ClO$ . . . . .	80.49	.....
15	iodide . . . . .	$CH_3.CH_2I$ . . . . .	156.01	1.9444 <sup>14</sup>
16	" (K.) . . . . .	$CH_3.CH_2I$ . . . . .	156.01	1.94 <sup>‡</sup>
17	isoamyl ether . . . . .	$C_2H_5.O.C_5H_{11}$ . . . . .	116.13	0.764 <sup>18</sup>
18	isobutyl ether . . . . .	$C_2H_5.O.C_4H_9$ . . . . .	102.12	0.7507
19	isobutyrate . . . . .	$(CH_3)_2CH.CO_2.C_2H_5$ . . . . .	116.10	0.8904 <sup>‡</sup>
20	isobutyl ketone . . . . .	$C_2H_5.CO.C_4H_9$ . . . . .	114.12	0.815 <sup>‡</sup>
21	isocrotyl ether . . . . .	$(CH_3)_2C:CHOC_2H_5$ . . . . .	100.10	.....
22	isocyanate . . . . .	$CNO.C_2H_5$ . . . . .	71.08	0.8981
23	isocyanide . . . . .	$C:N.C_2H_5$ . . . . .	55.08	0.7591 <sup>4</sup>
24	isopropyl ether . . . . .	$C_2H_5.O.CH(CH_3)_2$ . . . . .	88.10	0.7447 <sup>0</sup>
25	" ketone . . . . .	$C_2H_5.CO.CH(CH_3)_2$ . . . . .	100.10	0.830 <sup>8</sup>
26	isovalerate . . . . .	$(CH_3)_2CH.CH_2CO_2.C_2H_5$ . . . . .	130.12	0.8717 <sup>18</sup>
27	lactate . . . . .	$C_3H_5O_3.C_2H_5$ . . . . .	118.08	1.0308 <sup>19</sup>
28	laurate . . . . .	$C_{12}H_{23}O_2.C_2H_5$ . . . . .	228.22	0.867 <sup>19</sup>
29	malonate . . . . .	$C_3H_2O_4.(C_2H_5)_2$ . . . . .	160.10	1.0610 <sup>15</sup>
30	" (K.) . . . . .	$C_3H_2O_4.(C_2H_5)_2$ . . . . .	160.10	1.054 <sup>‡</sup>
31	mercaptan . . . . .	$C_2H_5SH$ . . . . .	62.11	0.8391 <sup>20</sup>
32	monotartrate . . . . .	$CO_2H.(CHOH)_2.CO_2.C_2H_5$ . . . . .	178.08	.....
33	mustard oil . . . . .	$C_2H_5NCS$ . . . . .	87.14	0.9952 <sup>23</sup>
34	myristate . . . . .	$C_{14}H_{27}O_2.C_2H_5$ . . . . .	256.26	.....
35	naphthaline (α) . . . . .	$C_{10}H_7.C_2H_5$ . . . . .	156.10	1.0184 <sup>10</sup>
36	" (β) . . . . .	$C_{10}H_7.C_2H_5$ . . . . .	156.10	1.0078 <sup>0</sup>
37	naphthyl ether (α) . . . . .	$C_{10}H_7OC_2H_5$ . . . . .	172.10	1.0746 <sup>‡</sup>
38	" " (β) . . . . .	$C_{10}H_7OC_2H_5$ . . . . .	172.10	.....
39	nitrate . . . . .	$C_2H_5NO_3$ . . . . .	91.08	1.1159 <sup>16</sup>
40	" (K.) . . . . .	$C_2H_5NO_3$ . . . . .	91.08	1.104 <sup>‡</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	198 c.c. <sup>14</sup>	v. soluble	.....	.....	−32°	.....
2	11	∞	∞	.....	54.4°	.....
3	s. sol. dec.	∞	∞	.....	54–5°	colorless.....
4	.....	.....	.....	.....	236–7°	.....
5	soluble	.....	.....	.....	230–240°	.....
6	.....	.....	.....	.....	225–30°	.....
7	soluble	∞	∞	.....	135°	.....
8	.....	.....	.....	.....	160° C.	.....
9	.....	.....	.....	.....	166.6°	.....
10	.....	.....	.....	.....	134–7°	.....
11	v. soluble	v. soluble	v. soluble	.....	99.5° <sup>700</sup>	.....
12	v. v. s. sol.	s. soluble	s. soluble	131°	dec. 315°+	tablets/al....
13	∞	∞	∞	.....	68°	.....
14	.....	.....	.....	.....	36° <sup>752</sup>	yellow.....
15	0.403 <sup>30</sup>	soluble	soluble	.....	72.34°	.....
16	s. soluble	soluble	∞	−118°	71–2°	turns reddish
17	.....	.....	.....	.....	112°	.....
18	.....	.....	.....	.....	78–80°	.....
19	s. soluble	∞	∞	.....	110.1°	.....
20	.....	.....	.....	.....	136°	.....
21	.....	.....	.....	.....	92–4°	.....
22	insol.	.....	.....	.....	60°	.....
23	mod. sol.	.....	soluble	< −66°	78.1°	.....
24	soluble	∞	∞	.....	54°	.....
25	.....	v. soluble	.....	.....	114.5°	.....
26	insol.	∞	∞	.....	134.3°	.....
27	∞	.....	.....	.....	154.5° C.	.....
28	.....	.....	.....	−10°	269°	oil.....
29	.....	.....	.....	−49.8° C.	197.7–8.2°C	.....
30	.....	∞	∞	.....	196.5–9.5	colorless.....
31	1.5	soluble	soluble	−22°	36.2°	.....
32	soluble	.....	.....	90°	.....	rhomb. pris. .
33	insol.	soluble	soluble	.....	131–2°	.....
34	.....	s. soluble	s. soluble	10.5–11.5	295°	.....
35	.....	.....	.....	< −14°	258° s. dec.	.....
36	.....	.....	.....	−19°	251°	.....
37	.....	.....	.....	< −5°	280.7° C.	.....
38	.....	.....	.....	33°	274–5°	cryst. mass.
39	insol.	soluble	soluble	−112° C.	87.6°	.....
40	v. s. sol.	∞	∞	−112°	86–7°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Ethyl nitrite . . . . .	$C_2H_5NO_2$ . . . . .	75.08	0.900 <sup>15</sup>
2	o. nitro cinnamate . . . . .	$NO_2C_9H_6O_2.C_2H_5$ . . . . .	221.13	.....
3	nitrolic acid . . . . .	$CH_3C(NO_2)NOH$ . . . . .	104.11	.....
4	orthoacetate . . . . .	$CH_3.C(OC_2H_5)_3$ . . . . .	162.15	0.94 <sup>22</sup>
5	orthocarbonate . . . . .	$C(OC_2H_5)_4$ . . . . .	192.16	0.925
6	orthoformate . . . . .	$HC(OC_2H_5)_3$ . . . . .	148.13	1.3922 <sup>18</sup>
7	orthosilicate . . . . .	$Si(OC_2H_5)_4$ . . . . .	208.56	0.933 <sup>20</sup>
8	oxalate . . . . .	$C_2H_4(C_2H_5)_2$ . . . . .	146.08	1.0815 <sup>18</sup>
9	" (K.) . . . . .	$C_2H_4(C_2H_5)_2$ . . . . .	146.08	1.076 <sup>22</sup>
10	palmitate . . . . .	$C_{16}H_{31}O_2.C_2H_5$ . . . . .	284.30	.....
11	perchlorate . . . . .	$C_2H_5ClO_4$ . . . . .	128.49	.....
12	phenol (o.) . . . . .	$C_2H_5.C_6H_4OH$ . . . . .	122.08	1.0371 <sup>0</sup> . . .
13	phenyl acetylene . . . . .	$C_6H_5.C:C_2H_5$ . . . . .	130.08	0.923 <sup>21</sup>
14	phenyl carbinol . . . . .	$C_6H_5.CH(OH).C_2H_5$ . . . . .	136.10	0.99 <sup>15</sup>
15	phenyl hydrazine (aa.) . . . . .	$C_6H_5(C_2H_5)N.NH_2$ . . . . .	136.18	1.018 <sup>15</sup>
16	" " (ab.) . . . . .	$C_6H_5NH.HNC_2H_5$ . . . . .	136.18	1. +
17	phenyl ketone . . . . .	$C_2H_5.CO.C_6H_5$ . . . . .	134.08	1.009 <sup>0</sup>
18	phenyl sulphone . . . . .	$C_2H_5.SO_2.C_6H_5$ . . . . .	170.14	1.01 <sup>22</sup>
19	phosphate . . . . .	$(C_2H_5)_3PO_4$ . . . . .	182.12	1.072 <sup>12</sup>
20	phosphine . . . . .	$C_2H_5PH_2$ . . . . .	62.06	< 1.
21	propargyl ether . . . . .	$C_2H_5OC_3H_3$ . . . . .	84.06	0.8326 <sup>22</sup>
22	propiolate . . . . .	$C_3HO_2.C_2H_5$ . . . . .	98.05	.....
23	propionate . . . . .	$C_2H_5.CO_2.C_2H_5$ . . . . .	102.08	0.8964 <sup>16</sup>
24	" (K.) . . . . .	$C_2H_5.CO_2.C_2H_5$ . . . . .	102.08	0.885 <sup>22</sup>
25	propyl carbinol . . . . .	$C_3H_7.CHOH.C_2H_5$ . . . . .	102.12	0.8188 <sup>20</sup>
26	" ether . . . . .	$C_2H_5OC_3H_7$ . . . . .	88.10	0.7545 <sup>0</sup>
27	" ketone . . . . .	$C_2H_5.CO.C_3H_5$ . . . . .	100.10	0.818 <sup>17.5</sup>
28	pyridine (2) (a) . . . . .	$C_2H_5.C_5H_4N$ . . . . .	107.11	0.9498 <sup>0</sup>
29	pyrol (1) . . . . .	$C_2H_5.C_4H_4N$ . . . . .	95.11	0.9042 <sup>10</sup>
30	salicylate . . . . .	$HOC_6H_5.CO_2.C_2H_5$ . . . . .	166.08	1.1843 <sup>20</sup>
31	" (K.) . . . . .	$HOC_6H_5.CO_2.C_2H_5$ . . . . .	166.08	1.13 <sup>22</sup>
32	selenide . . . . .	$(C_2H_5)_2Se$ . . . . .	137.28	1. +
33	succinate . . . . .	$C_4H_4O_4(C_2H_5)_2$ . . . . .	174.12	1.0464 <sup>15</sup>
34	" (K.) . . . . .	$C_4H_4O_4(C_2H_5)_2$ . . . . .	174.12	1.038 <sup>22</sup>
35	succinic acid . . . . .	$CO_2H.CH(C_2H_5).CH_2$ $CO_2H$	146.08	.....
36	sulphate . . . . .	$(C_2H_5)_2SO_4$ . . . . .	154.14	1.1837 <sup>19</sup>
37	sulphide . . . . .	$(C_2H_5)_2S$ . . . . .	90.14	0.8368 <sup>22</sup>
38	sulphinic acid . . . . .	$C_2H_5SO_2H$ . . . . .	94.11	.....
39	sulphite . . . . .	$(C_2H_5)_2SO_3$ . . . . .	138.14	1.1063 <sup>0</sup>
40	sulphocyanate . . . . .	$NCS.C_2H_5$ . . . . .	87.15	1.0071 <sup>22</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.	∞	soluble	.....	16.4°	.....
2	{ v. sol. bz. and CS <sub>2</sub>	v. sol.	v. soluble	44°	.....	{ thin rhomb. need.
3	soluble	.....	soluble	81-2°	dec.	yel. rhombic.
4	.....	.....	.....	.....	142°	.....
5	.....	.....	.....	.....	158-9°	.....
6	.....	.....	.....	.....	145.5°	.....
7	decomp.	.....	.....	.....	165°	.....
8	s. soluble	soluble	.....	-41°	186.1° C.	.....
9	s. sol. dec.	∞	∞	-41°	184-5°	colorless.....
10	.....	.....	.....	24.2°	.....	long flat need.
11	insoluble	soluble	soluble	.....	74°	oil.....
12	.....	.....	.....	< -18°	206.5-7.5°	.....
13	.....	.....	.....	.....	201-3°	.....
14	.....	soluble	soluble	.....	219-20°	.....
15	.....	.....	.....	.....	237° C.	oil.....
16	s. soluble	soluble	soluble	.....	dist.	oil.....
17	.....	.....	.....	21°	218°	.....
18	mod.sol. hot	v. sol.	v. soluble	42°	> 300°	moncl. tab./et
19	decomp.	soluble	soluble	.....	215°	.....
20	.....	.....	.....	.....	25°	.....
21	s. soluble	∞	∞	.....	80°	.....
22	.....	v. soluble	v. soluble	.....	119°	oil.....
23	s. soluble	∞	∞	.....	98.8° C.	.....
24	.....	∞	∞	.....	99-102°	colorless.....
25	.....	soluble	.....	.....	135° C.	.....
26	soluble	∞	∞	.....	63.6.	.....
27	.....	.....	.....	.....	122-4°	.....
28	.....	.....	.....	.....	148.5° <sup>0.752</sup>	.....
29	insol.	∞	∞	.....	131°	.....
30	.....	.....	.....	.....	231.5°	.....
31	.....	soluble	∞	1.5-2°	230.5-2.5	{ colorless to yellowish
32	insol.	.....	.....	.....	107-8°	.....
33	insol.	s. soluble	insoluble *	88-90°	216.5° C.	.....
34	insol.	soluble	∞	.....	215-6.5°	colorless.....
35	v. soluble	v. soluble	v. soluble	98°	.....	fine prisms ..
36	insol.	dec. hot	.....	-24.5°	208° C. dec.	.....
37	insol.	soluble	soluble	.....	92.2-3° C.	.....
38	sol. alkali	.....	.....	.....	.....	syrup.....
39	.....	.....	.....	.....	161.3°	.....
40	insol.	∞	∞	.....	146° C.	.....

\* Very soluble chloroform ; insoluble ligroin and C<sub>6</sub>H<sub>6</sub>

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Ethyl sulphone . . . . .	$(C_2H_5)_2SO_2$ . . . . .	122.14	1.357 <sup>20</sup>
2	“ chloride . . . . .	$C_2H_5.SO_2Cl$ . . . . .	128.55	1.357 <sup>22</sup>
3	sulphonic acid . . . . .	$C_2H_5SO_2OH$ . . . . .	110.11	.....
4	sulphoxamate . . . . .	$NH_2CSCO_2C_2H_5$ . . . . .	133.15	.....
5	sulphoxide . . . . .	$(C_2H_5)_2SO$ . . . . .	106.14	.....
6	sulphuric acid . . . . .	$C_2H_5HSO_4$ . . . . .	126.11	1.316 <sup>16</sup>
7	tartrate (d.) . . . . .	$C_4H_4O_6(C_2H_5)_2$ . . . . .	206.12	1.2059 <sup>20</sup>
8	teluride . . . . .	$(C_2H_5)_2Te$ . . . . .	185.68	.....
9	thiocarbonate . . . . .	$CS(OC_2H_5)_2$ . . . . .	134.14	1.032 <sup>1</sup>
10	thymyl ether . . . . .	$C_2H_5OC_{10}H_{13}$ . . . . .	178.15	0.9334 <sup>0</sup>
11	toluene (o.) . . . . .	$C_2H_5.C_6H_4.CH_3$ . . . . .	120.10	0.8731 <sup>16</sup>
12	“ (m.) . . . . .	$C_2H_5.C_6H_4.CH_3$ . . . . .	120.10	0.869 <sup>20</sup>
13	“ (p.) . . . . .	$C_2H_5.C_6H_4.CH_3$ . . . . .	120.10	0.8652 <sup>21</sup>
14	toluate (o.) . . . . .	$CH_3.C_6H_4CO_2.C_2H_5$ . . . . .	164.10	.....
15	“ (m.) . . . . .	$CH_3.C_6H_4CO_2.C_2H_5$ . . . . .	164.10	.....
16	trichloracetate . . . . .	$CCl_3.CO_2.C_2H_5$ . . . . .	191.39	1.3826 <sup>22</sup>
17	valerate . . . . .	$C_5H_9O_2.C_2H_5$ . . . . .	130.12	0.8765 <sup>20</sup>
18	vanillate . . . . .	$C_8H_7O_4.C_2H_5$ . . . . .	196.10	.....
19	urea . . . . .	$C_2H_5NH.CO.NH_2$ . . . . .	88.14	1.213 <sup>18</sup>
20	Ethylene . . . . .	$CH_2:CH_2$ . . . . .	28.03	$\begin{cases} 1.0.610 \\ g.0.9784 \end{cases}$
21	acetate . . . . .	$(C_2H_3O_2)_2C_2H_4$ . . . . .	146.08	1.128 <sup>0</sup>
22	bromide . . . . .	$CH_2Br.CH_2Br$ . . . . .	187.95	2.1901 <sup>17</sup>
23	“ (K.) . . . . .	$CH_2Br.CH_2Br$ . . . . .	187.95	2.175 <sup>18</sup>
24	chloride . . . . .	$CH_2Cl.CH_2Cl$ . . . . .	98.93	1.2808 <sup>18</sup>
25	“ (K.) . . . . .	$CH_2Cl.CH_2Cl$ . . . . .	98.93	1.254 <sup>18</sup>
26	diamine . . . . .	$NH_2CH_2.CH_2NH_2 + H_2O$ . . . . .	78.14	0.970 <sup>16</sup>
27	diphenyl ether . . . . .	$C_2H_4(OC_6H_5)_2$ . . . . .	214.12	.....
28	glycol . . . . .	$OHCH_2.CH_2OH$ . . . . .	62.05	.....
29	“ (K.) . . . . .	$OHCH_2.CH_2OH$ . . . . .	62.05	1.113 <sup>18</sup>
30	iodide . . . . .	$CH_2I.CH_2I$ . . . . .	281.97	2.07
31	monoacetate . . . . .	$OHCH_2.CH_2OC_2H_3O$ . . . . .	102.05	1. +
32	nitrate . . . . .	$NO_3.CH_2.CH_2.NO_3$ . . . . .	152.11	1.5099 <sup>4</sup>
33	nitrate nitrite . . . . .	$NO_2.CH_2.CH_2.NO_3$ . . . . .	136.11	1.472
34	nitrite . . . . .	$NO_2.CH_2.CH_2.NO_2$ . . . . .	120.11	1.2156 <sup>0</sup>
35	oxide . . . . .	$<(CH_2)_2>O$ . . . . .	44.03	0.8966 <sup>0</sup>
36	Ethylidene bromide . . . . .	$CH_3.CHBr_2$ . . . . .	187.95	2.1001 <sup>17</sup>
37	chloride . . . . .	$CH_3.CHCl_2$ . . . . .	98.93	1.1863 <sup>17</sup>
38	iodide . . . . .	$CH_3.CHI_2$ . . . . .	281.97	2.84 <sup>0</sup>
39	urea . . . . .	$CO <(NH)_2>CH.CH_3$ . . . . .	86.13	.....
40	Eucalyptol . . . . .	$C_{10}H_{18}O$ . . . . .	154.15	0.9267 <sup>20</sup>
41	Eugenol . . . . .	$C_{10}H_{12}O_2$ . . . . .	164.10	0.0630 <sup>18</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	15.6 <sup>16</sup>	.....	.....	70°	248°	rhombic ....
2	dec.	.....	.....	.....	177.5° C.	.....
3	deliq.	soluble	sol. alkali	.....	.....	cryst. mass. .
4	v. sol. hot	v. soluble	v. soluble	63°	.....	lemon yel pris
5	v. soluble	.....	.....	.....	decomp.	thick liquid..
6	v. soluble	soluble	soluble	.....	decomp.	syrup.....
7	insol.	soluble	soluble	.....	280°	.....
8	v. v. s. sol.	.....	.....	.....	137-8°	reddish yel. .
9	insol.	v. soluble	v. soluble	.....	161-2°	.....
10	.....	.....	.....	.....	226.9°	.....
11	.....	.....	.....	< -17°	158-9°	.....
12	insol.	soluble	soluble	.....	158-9°	.....
13	insol.	soluble	soluble	.....	161-2°	.....
14	.....	.....	.....	.....	221°	.....
15	.....	.....	.....	.....	226-8°	.....
16	.....	.....	.....	.....	167.1° <sup>755</sup>	.....
17	.....	.....	.....	.....	144.5°	.....
18	.....	.....	.....	44°	291-3°	crystal.....
19	v. v. sol.	v. v. sol.	insol. abs.	91°	.....	moncl. prisms
20	25.63 c.c. <sup>0</sup>	359.5 c.c.	soluble	-169°	-102.7°	.....
21	14.3	soluble	soluble	.....	186-7°	.....
22	insol.	soluble	.....	9.53°	131.6°	.....
23	v. s. sol.	soluble	∞	9.5-10°	129.5-31.5	colorless to yel
24	0.869 <sup>20</sup>	soluble	.....	.....	83.5° C.	.....
25	v. s. sol.	soluble	∞	-40°	83-4.5°	colorless.....
26	soluble	.....	.....	10°	116.5°	.....
27	v. s. sol.	s. soluble	v. soluble	98.5°	.....	crystals ....
28	soluble	.....	1.1	-17.4°	197.37°	.....
29	∞	∞	v. s. sol.	-20°	194-8°	colorless.....
30	.....	soluble	.....	81-2°	dec.	pris. or tab...
31	∞	soluble	.....	.....	182°	.....
32	.....	soluble	.....	*	.....	.....
33	.....	soluble	.....	.....	not volatile	oil.....
34	insol.	soluble	soluble	< -15°	96-8°	.....
35	∞	∞	∞	.....	13.5° <sup>746</sup>	.....
36	.....	.....	.....	.....	112.5° <sup>755</sup>	.....
37	0.550 <sup>20</sup>	.....	.....	.....	59.9° C.	.....
38	.....	.....	.....	.....	177-9°	.....
39	v. v. s. sol.	s. soluble	v. v. s. sol.	154°	dec. 160°	small needles
40	.....	.....	.....	-1-3°	176°	.....
41	v. s. sol.	v. soluble	v. soluble	.....	247.5° dec.	oil.....

\* Explodes by percussion.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Euxanthic acid.....	$C_{19}H_{18}O_{11}$ .....	458.18	.....
2	Euxanthone.....	$C_{13}H_8O_4$ .....	228.06	.....
3	Filixic acid.....	$C_{14}H_{16}O_5$ .....	264.13	.....
4	Flavaniline.....	$C_{16}H_{14}N_2$ .....	234.20	.....
5	Flavopurpurin.....	$C_{14}H_5(OH)_3O_2$ .....	256.06	.....
6	Fluor acetic acid.....	$CH_2F.CO_2H$ .....	78.03	.....
7	Fluoran.....	$C_{20}H_{12}O_3$ .....	300.10	.....
8	Fluoranthene.....	$C_{15}H_{10}$ .....	190.08	.....
9	Fluor-benzene.....	$C_6H_5F$ .....	96.04	1.0236 <sup>29</sup>
10	benzoic acid (o.).....	$FC_6H_4.CO_2H$ .....	140.04	.....
11	“ “ (m.).....	$FC_6H_4.CO_2H$ .....	140.04	.....
12	“ “ (p.).....	$FC_6H_4.CO_2H$ .....	140.04	.....
13	Fluorene.....	$(C_6H_4)_2:CH_2$ .....	166.08	.....
14	Fluorescein.....	$C_{20}H_{12}O_5$ .....	332.10	.....
15	Fluoroform.....	$CHF_3$ .....	70.01	.....
16	Fluortoluene (p.).....	$FC_6H_4CH_3$ .....	100.06	0.992 <sup>25</sup>
17	Formic acid.....	$H.CO_2H$ .....	46.02	1.2448 <sup>2</sup>
18	“ (K.).....	$H.CO_2H$ .....	46.02	1.219 <sup>24</sup>
19	Formaldehyde.....	$HCOH$ .....	30.02	0.8153 <sup>-20</sup>
20	Formamide.....	$HCONH_2$ .....	45.07	1.337 <sup>24</sup>
21	Formanilid.....	$HCONHC_6H_5$ .....	121.10	.....
22	Fructose (d.).....	$C_6H_{12}O_6$ .....	180.10	1.555 <sup>0</sup>
23	Fuchsin.....	$C_{20}H_{19}N_3HCl$ .....	337.74	1.220
24	Fulminic acid.....	$C_2H_2N_2O_2$ .....	86.08	.....
25	Fulminuric acid.....	$C_3H_3N_3O_3$ .....	129.12	.....
26	Fumaric acid.....	$CO_2H.CH:CH.CO_2H$ .....	116.03	1.625
27	Furfural.....	$C_4H_3O.CO_2H$ .....	96.03	1.1594 <sup>20</sup>
28	“ (K.).....	$C_4H_3O.CO_2H$ .....	96.03	1.158 <sup>24</sup>
29	Furfuramide.....	$(C_5H_4O)_3N_2$ .....	268.18	.....
30	Furfuran.....	$C_4H_4O$ .....	68.03	0.9444 <sup>15</sup>
31	Furfuryl alcohol.....	$C_4H_3O.CH_2OH$ .....	98.05	1.1355 <sup>20</sup>
32	Galactose (d.).....	$C_6H_{12}O_6$ .....	180.10	.....
33	Gallic acid 3: 4: 5.....	$(OH)_3C_6H_2CO_2H + H_2O$ ..	188.07	1.694 <sup>4</sup>
34	Geranial.....	$C_{10}H_{18}O$ .....	154.15	0.8829 <sup>15</sup>
35	Guanine.....	$C_5H_5N_5O$ .....	151.24	.....
36	Guiacol.....	$o.CH_2O.C_6H_4OH$ .....	108.06	1.143 <sup>15</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	s. soluble	mod. sol.	v. soluble	156–8°	dec.	glit. yel. need
2	insol.	soluble	s. soluble	240° C.	sub. dec.	{ pale yel. leaf. or need.
3	insol.	v. v. s. sol.	mod. sol.	184.5°	.....	v. sm. leaf./et
4	v. s. sol.	soluble	sol. bz.	97°	dist.	lrg. pris./bz..
5	v. s. sol. hot	v. s. sol.	s. soluble	459° C.	sub.	yel. need./al.
6	.....	.....	.....	33°	165°	.....
7	sol. H <sub>2</sub> SO <sub>4</sub>	soluble	.....	180°	.....	flat needles..
8	sol. CS <sub>2</sub>	s. soluble	v. soluble	109–10°	217° <sup>30</sup>	monoclinic...
9	.....	.....	.....	< –20°	85°	.....
10	s. soluble	v. soluble	v. soluble	117–8°	.....	fine need./w..
11	.....	.....	.....	123–4°	.....	leaflets/w....
12	s. soluble	soluble	soluble	182°	.....	rhmb. pris./w
13	v. sol. bz., C.S <sub>2</sub>	s. soluble	v. soluble	112–3°	295° C.	leaflets/al....
14	sol. alkali	soluble	s. soluble	no m.p.	dec. 290°	cryst. powder
15	.....	.....	.....	.....	20° <sup>40</sup> at.	.....
16	.....	.....	.....	.....	116–7°	.....
17	∞	.....	.....	8.6°	100.8°	.....
18	∞	∞	∞	7.5°	100–1°	.....
19	soluble	soluble	.....	.....	–21°	.....
20	soluble	soluble	.....	–1°	192–5°	.....
21	mod. sol.	v. soluble	soluble	46°	.....	quad. pris./w.
22	v. soluble	20	soluble	95°	.....	trimetric....
23	s. soluble	soluble	.....	.....	.....	rhomb. tab...
24	.....	.....	v. soluble	.....	.....	.....
25	soluble	soluble	soluble	.....	exp. 145°	needles/al....
26	0.66 <sup>16</sup>	soluble	soluble	286–7°	sub. 200°+	prisms.....
27	9 <sup>13</sup>	soluble	soluble	.....	161°	{ bright yel.
28	9 <sup>13</sup>	∞	∞	.....	160–2°	{ →dark yel.
29	insol.	v. soluble	v. soluble	117°	250° dec.	{ thin short
30	insol.	v. soluble	v. v. sol.	.....	31.4–5° <sup>756</sup>	{ needles
31	s. soluble	v. soluble	v. soluble	.....	168–70°	syrup.....
32	v. soluble	s. soluble	.....	170–1°	.....	hexag. tab./a
33	0.8 <sup>12</sup> ; 33 <sup>100</sup>	27.95	2.50	222–40°	dec.	need. or tric. prism
34	insol.	∞	∞	< –15°	229–30°	.....
35	insol.	v. s. sol.	v. s. sol.	dec.	.....	{ need. or tab. NH <sub>3</sub>
36	1.67 <sup>16</sup>	soluble	.....	–123°	205.1°	rhomb. prism.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Gluconic acid (d.) . . . . .	$\text{OHCH}_2(\text{CHOH})_4\text{CO}_2 + 2\text{H}_2\text{O}$	234.14	.....
2	Glucose (d.) . . . . .	$\text{C}_6\text{H}_{12}\text{O}_6 + \text{H}_2\text{O}$ . . . . .	198.12	1.54–1.57
3	Glucose oxime (d.) . . . . .	$\text{C}_6\text{H}_{12}\text{O}_5 : \text{NOH}$ . . . . .	195.15	.....
4	pentacetate (a) . . . . .	$\text{C}_6\text{H}_7\text{O}_5(\text{C}_2\text{H}_3\text{O})_5$ . . . . .	390.18	.....
5	phenyl hydrazone (a) . . . . .	$\text{C}_6\text{H}_{12}\text{O}_5\text{N}_2\text{HC}_6\text{H}_5$ . . . . .	270.23	.....
6	“ “ (β) . . . . .	$\text{C}_6\text{H}_{12}\text{O}_5\text{N}_2\text{HC}_6\text{H}_5$ . . . . .	270.23	.....
7	Glutacanic acid . . . . .	$\text{CO}_2\text{H}.\text{CH}_2.\text{CH}:\text{CHCO}_2\text{H}$	130.05	.....
8	anhydride . . . . .	$\text{C}_5\text{H}_4\text{O}_3$ . . . . .	112.03	.....
9	Glutaminic acid . . . . .	$\text{C}_3\text{H}_5\text{NH}_2(\text{CO}_2\text{H})_2$ . . . . .	147.11	.....
10	Glutaric acid . . . . .	$\text{CO}_2\text{H}.\text{(CH}_2)_3\text{CO}_2\text{H}$ . . . . .	132.06	.....
11	anhydride . . . . .	$\text{C}_5\text{H}_6\text{O}_3$ . . . . .	114.02	.....
12	Glyceric acid . . . . .	$\text{OHCH}_2.\text{CHOH}.\text{CO}_2\text{H}$ . . . . .	106.05	.....
13	aldehyde . . . . .	$\text{OHCH}_2.\text{CHOH}.\text{CHO}$ . . . . .	90.05	.....
14	Glycerine . . . . .	$\text{OHCH}_2.\text{CHOH}.\text{CH}_2\text{OH}$ . . . . .	92.06	1.2604 <sup>39</sup>
15	acetates . . . . .	* . . . . .	.....	.....
16	mononitrate . . . . .	$\text{CH}_2\text{OH}.\text{CHOH}.\text{CH}_2\text{NO}_3$	137.10	.....
17	trinitrate . . . . .	$\text{CH}_2\text{NO}_3.\text{CHNO}_3.\text{CH}_2\text{NO}_3$	227.16	1.6009 <sup>15</sup>
18	trinitrite . . . . .	$\text{CH}_2\text{NO}_2.\text{CHNO}_2.\text{CH}_2\text{NO}_2$	179.16	1.2914 <sup>8</sup>
19	Glyceryl ether . . . . .	$\text{C}_3\text{H}_5 : \text{O}_3 : \text{C}_3\text{H}_5$ . . . . .	130.08	1.0907 <sup>18</sup>
20	Glycid . . . . .	$\text{C}_2\text{H}_3\text{O}.\text{CH}_2\text{OH}$ . . . . .	74.05	1.165 <sup>0</sup>
21	Glycocholic acid . . . . .	$\text{C}_{26}\text{H}_{43}\text{NO}_6$ . . . . .	465.39	.....
22	Glycocoll . . . . .	$\text{NH}_2\text{CH}_2\text{CO}_2\text{H}$ . . . . .	75.08	1.1607
23	Glycogen . . . . .	$(\text{C}_6\text{H}_{10}\text{O}_5)_x$ . . . . .	162.08	.....
24	Glycol . . . . .	$\text{CH}_2\text{OH}.\text{CH}_2\text{OH}$ . . . . .	62.05	1.125 <sup>0</sup>
25	aldehyde . . . . .	$\text{CH}_2\text{OH}.\text{CHO}$ . . . . .	60.03	.....
26	amide . . . . .	$\text{CH}_2\text{OH}.\text{CONH}_2$ . . . . .	75.08	.....
27	diacetate . . . . .	$\text{C}_2\text{H}_3\text{O}_2.\text{CH}_2.\text{CH}_2.\text{C}_2\text{H}_3\text{O}_2$	146.08	1.128 <sup>0</sup>
28	dimethyl ether . . . . .	$\text{CH}_3\text{OCH}_2.\text{CH}_2\text{OCH}_3$ . . . . .	90.08	0.8732 <sup>20</sup>
29	Glycollic acid . . . . .	$\text{OHCH}_2.\text{CO}_2\text{H}$ . . . . .	76.03	.....
30	anhydride . . . . .	$\text{C}_4\text{H}_6\text{O}_5$ . . . . .	134.05	.....
31	Glycollid . . . . .	$\text{C}_2\text{H}_2\text{O}_2$ . . . . .	58.02	.....
32	Glycol monoacetate . . . . .	$\text{CH}_2\text{OH}.\text{CH}_2\text{O}.\text{C}_2\text{H}_3\text{O}$ . . . . .	104.06	.....
33	urea . . . . .	$\text{C}_3\text{H}_4\text{N}_2\text{O}_2$ . . . . .	100.11	.....
34	Glyoxal . . . . .	$\text{CHO}.\text{CHO}$ . . . . .	58.02	.....
35	Glyoxalic acid . . . . .	$\text{CHO}.\text{CO}_2\text{H} + \text{H}_2\text{O}$ . . . . .	92.03	.....
36	Glyoxalin . . . . .	$\text{C}_3\text{H}_4\text{N}_2$ . . . . .	68.11	.....

\* See mono-, di-, and triacetins.



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. soluble	insol.	.....	.....	.....	syrup.....
2	81.68 <sup>17</sup>	s. soluble	insol.	146°	.....	need./abs. al.
3	v. soluble	v. s. sol.	insol.	136.7°	.....	sm. need. meth. al.
4	s. soluble	mod. sol.	v. soluble †	111-2°	.....	fine need./lig.
5	v. soluble	v. sol. hot	v. v. s. sol.	144-5°	.....	v. small cryst
6	.....	more sol. than α	.....	115-6°	.....	long needles .
7	v. soluble	v. soluble	v. soluble	138°	.....	prisms/et. . .
8	.....	.....	soluble	87°	.....	flat need./et..
9	1 <sup>16</sup>	s. soluble	insol.	202-5°	.....	rhombic.....
10	{ 63.9 <sup>20</sup> , 111.8 <sup>65</sup>	v. sol.	v. soluble	97.5°	302-4°	moncl. prisms
11	v. s. sol.	.....	s. soluble	56-7°	287° C.	thin needles..
12	∞	∞	insol.	.....	....[steam	syrup.....
13	slowly	v. v. s. sol.	v. v. s. sol.	abt. 132°	not vol. in	crystals.....
14	∞	∞	insol.	17°	290° C.	rhombic.....
15	.....	.....	.....	.....	.....	.....
16	v. soluble	v. soluble	s. soluble	.....	.....	.....
17	0.12	25	∞	-20°	exp. 260°	yellow oil....
18	insol.	decomp.	soluble	.....	150°	yellow.....
19	∞	∞	∞	.....	171-3°	.....
20	∞	∞	∞	.....	161-2° dec	.....
21	3.3 <sup>20</sup>	soluble	0.093	132-4°	.....	needles.....
22	23.2	insol.	.....	232-6° C.	.....	monoclinic ..
23	v. soluble	insol.	.....	abt. 240°	.....	amorph. pow.
24	∞	∞	1.1	-17.4°	197.37°	sweet .....
25	v. soluble	v. sol. hot	s. soluble	95-7°	s. vol. in	plates.....
26	.....	v. soluble	s. soluble	120°	....[steam	crystals.....
27	14	soluble	soluble	.....	186-7°	.....
28	.....	.....	.....	.....	83-4°	.....
29	∞	∞	∞	78-9°	dec.	rhomb. moncl
30	insol.	insol.	insol.	128-30°	dec.	powder.....
31	insol.	s. soluble	s. soluble	82°: 86-7°	.....	leaflets/al....
32	∞	∞	∞	.....	182°	.....
33	mod. sol.	.....	.....	216°	.....	needles.....
34	v. soluble	soluble	soluble	.....	dec. 160°	amorphous ..
35	v. soluble	.....	.....	.....	with steam	rhomb. prism
36	soluble	v. soluble	soluble	88-9°	255°	thick prisms.

† V. sol. et., chlo., bz. and acet. ac.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Glyoxime . . . . .	$\text{OHN:CH.CH:NOH}$ . . . . .	88.11	.....
2	Guaiacol . . . . .	$\text{o.OH.C}_6\text{H}_4.\text{OCH}_3$ . . . . .	124.06	1.143 <sup>15</sup>
3	Guanidene . . . . .	$\text{NH:C(NH}_2)_2$ . . . . .	59.16	.....
4	Haematoxylin . . . . .	$\text{C}_{16}\text{H}_{14}\text{O}_6 + 3\text{H}_2\text{O}$ . . . . .	356.16	.....
5	Helicin (l.) . . . . .	$\text{C}_{13}\text{H}_{16}\text{O}_7 + \frac{1}{2}\text{H}_2\text{O}$ . . . . .	284.13	.....
6	Hemimelitic acid . . . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})_3$ 1: 2: 3 . . . . .	212.05	.....
7	Hemipinic acid . . . . .	$(\text{CH}_3\text{O})_2\text{C}_6\text{H}_2(\text{CO}_2\text{H})_2 + 2\text{H}_2\text{O}$ . . . . .	226.08	.....
8	Heptadecane . . . . .	$\text{C}_{17}\text{H}_{36}$ . . . . .	240.29	0.7766 <sup>12</sup>
9	Heptamethylene . . . . .	$(\text{CH}_2)_7$ . . . . .	98.12	0.8094 <sup>20</sup>
10	Heptane (n.) . . . . .	$\text{CH}_3(\text{CH}_2)_5\text{CH}_3$ . . . . .	100.13	0.6885 <sup>15</sup>
11	" . . . . .	$(\text{CH}_3)_2\text{C}(\text{C}_2\text{H}_5)_2$ . . . . .	100.13	0.7111 <sup>0</sup>
12	" . . . . .	$\text{HC}(\text{C}_2\text{H}_5)_3$ . . . . .	100.13	0.689 <sup>27</sup>
13	" . . . . .	$\text{C}_2\text{H}_5\text{CH}(\text{CH}_3)\text{C}_3\text{H}_7$ . . . . .	100.13	0.6895 <sup>20</sup>
14	Hepten(3)oic(1) acid . . . . .	$\text{C}_7\text{H}_{12}\text{CH:CH.CH}_2\text{CO}_2\text{H}$ . . . . .	128.10	.....
15	Heptine . . . . .	$\text{C}_7\text{H}_{12}$ . . . . .	96.10	0.8031 <sup>20</sup>
16	Heptoic acid (n.) . . . . .	$\text{CH}_3(\text{CH}_2)_5\text{CO}_2\text{H}$ . . . . .	130.12	0.9183 <sup>20</sup>
17	anhydride . . . . .	$(\text{C}_6\text{H}_{13}\text{CO})_2\text{O}$ . . . . .	242.21	0.932 <sup>21</sup>
18	Heptone . . . . .	$\text{C}_7\text{H}_{10}$ . . . . .	94.08	.....
19	Heptyl acetate (n.) . . . . .	$\text{C}_2\text{H}_3\text{O}_2.\text{C}_7\text{H}_{15}$ . . . . .	158.15	0.874 <sup>16</sup>
20	alcohol . . . . .	$\text{CH}_3(\text{CH}_2)_5\text{CH}_2\text{OH}$ . . . . .	116.13	0.830 <sup>16</sup>
21	Heptylene (1) . . . . .	$\text{CH}_3(\text{CH}_2)_4\text{CH:CH}_2$ . . . . .	98.12	0.7026 <sup>19</sup>
22	Heptyl ether (n.) . . . . .	$(\text{C}_7\text{H}_{15})_2\text{O}$ . . . . .	214.24	0.815 <sup>0</sup>
23	formate . . . . .	$\text{HCO}_2.\text{C}_7\text{H}_{15}$ . . . . .	144.13	0.894 <sup>0</sup>
24	Hesperidine . . . . .	$\text{C}_{22}\text{H}_{26}\text{O}_{12}$ . . . . .	482.21	.....
25	Hexabrom ethane . . . . .	$\text{CBr}_3.\text{CBr}_3$ . . . . .	403.76	.....
26	Hexachlor benzene . . . . .	$\text{CCl}_6$ . . . . .	284.70	1.569 <sup>236</sup>
27	ethane . . . . .	$\text{CCl}_3.\text{CCl}_3$ . . . . .	236.70	2.011
28	Hexadecane . . . . .	$\text{C}_{16}\text{H}_{34}$ . . . . .	226.27	0.7754 <sup>12</sup>
29	Hexaethyl benzene . . . . .	$\text{C}_6(\text{C}_2\text{H}_5)_6$ . . . . .	246.24	.....
30	Hexahydro-anthracene . . . . .	$\text{C}_{14}\text{H}_{10}$ . . . . .	184.13	.....
31	benzene . . . . .	$\text{C}_6\text{H}_{12}$ . . . . .	84.10	0.790 <sup>12</sup>
32	benzoic acid . . . . .	$\text{C}_6\text{H}_5\text{CO}_2\text{H}$ . . . . .	128.10	.....
33	cymene . . . . .	$\text{CH}_3.\text{C}_6\text{H}_{10}.\text{C}_3\text{H}_7$ . . . . .	140.16	0.8116 <sup>17</sup>
34	cumene . . . . .	$\text{C}_3\text{H}_7.\text{C}_6\text{H}_{11}$ . . . . .	126.15	0.787 <sup>20</sup>
35	mellitic acid . . . . .	$\text{C}_6\text{H}_6(\text{CO}_2\text{H})_6$ . . . . .	348.10	.....
36	salicylic acid . . . . .	$\text{OHC}_6\text{H}_4\text{CO}_2\text{H}$ . . . . .	144.10	.....
37	toluene . . . . .	$\text{CH}_3.\text{C}_6\text{H}_{11}$ . . . . .	98.12	0.769 <sup>12</sup>
38	m-xylene . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_{10}$ . . . . .	112.13	0.759 <sup>12</sup>
39	Hexahydroxy benzene . . . . .	$\text{C}_6(\text{OH})_6$ . . . . .	174.10	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. s. sol. hot	insol.	insol.	176°	sub.	rhomb.tab./w
2	1.7	soluble	soluble	31-2°	205.1°	rhombohedral
3	.....	.....	.....	.....	.....	crystals.....
4	s. soluble	soluble	soluble	140°	.....	tetrag. prisms
5	v. sol. 100°	soluble	insol.	175°	.....	v. fine need..
6	s. soluble	.....	.....	185° dec.	dec.	needles.....
7	s. soluble	mod. sol.	.....	165-6°	sublimes	crystals.....
8	.....	.....	.....	22.5°	303°	hexag. tab...
9	.....	.....	.....	.....	117° <sup>0.743</sup>	oil.....
10	.....	soluble	soluble	.....	98.4°	.....
11	.....	soluble	soluble	.....	86-7°	.....
12	.....	soluble	soluble	.....	95-8°	.....
13	.....	.....	.....	.....	91°	.....
14	.....	.....	.....	< -18°	226-8° C.	.....
15	.....	.....	.....	.....	103-4°	.....
16	.....	soluble	.....	-10.5°	223-3.5°	.....
17	.....	.....	.....	.....	268-71°	.....
18	.....	.....	.....	.....	115°	.....
19	.....	.....	.....	.....	191.5°	.....
20	soluble	∞	∞	.....	175.8°	.....
21	.....	soluble	.....	.....	98-9°	.....
22	.....	.....	.....	.....	261.9°	.....
23	.....	.....	.....	.....	176-7°	.....
24	0.02	s. soluble	insol.	251° dec.	.....	v. sm. need...
25	.....	s. soluble	s. soluble	.....	dec. 210°	prisms.....
26	.....	insol. cold	v. s. sol.	226°	326°	prisms.....
27	insol.	v. soluble	v. soluble	.....	185° C.	rhomb. tab.
28	.....	∞	∞	19-20°	287.5°	pearly leaflets
29	insol.	soluble	v. soluble	129°	298° C.	long moncl.pr.
30	v. sol. bz.	v. soluble	v. soluble	63°	290°	leaflets.....
31	.....	.....	.....	4.7°	80.8°	.....
32	s. soluble	v. soluble	v. soluble	30.5-1°	232-3°	leaflets.....
33	.....	.....	.....	.....	171-3°	.....
34	.....	.....	.....	.....	147-50°	.....
35	v. soluble	v. soluble	s. soluble	dec.	.....	crystals.....
36	v. soluble	v. soluble	v. soluble	111°	.....	quad. tab.
37	.....	.....	.....	.....	100-1°	[and need.
38	.....	.....	.....	.....	118-9°	.....
39	s. soluble	s. soluble	s. soluble	none	.....	long needles.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Hexamethyl benzene . . . . .	$C_6(CH_3)_6$ . . . . .	162.15	
2	Hexane (n.) . . . . .	$CH_3(CH_2)_4CH_3$ . . . . .	86.12	0.658 <sup>21</sup>
3	“ . . . . .	$(CH_3)_2CH.CH(CH_3)_2$ . . . . .	86.12	0.668 <sup>17</sup>
4	“ . . . . .	$(CH_3CH_2)_2CH.CH_3$ . . . . .	86.12	0.6765 <sup>22</sup>
5	Hexen(1)oic(6) acid . . . . .	$CH_2:CH(CH_2)_3.CO_2H$ . . . . .	114.08	
6	Hexen(5)oic(6) “ . . . . .	$CH_3(CH_2)_2.CH:CH.CO_2H$ . . . . .	114.08	
7	Hexenyl alcohol . . . . .	$C_6H_{11}OH$ . . . . .	100.10	0.891 <sup>10</sup>
8	ether . . . . .	$(C_6H_{11})_2O$ . . . . .	182.18	
9	Hexoic aldehyde . . . . .	$CH_3(CH_2)_4CHO$ . . . . .	100.10	0.8335 <sup>20</sup>
10	Hexyl acetate (n.) . . . . .	$C_2H_3O_2.C_6H_{13}$ . . . . .	144.13	0.8902 <sup>0</sup>
11	alcohol . . . . .	$CH_3(CH_2)_4.CH_2OH$ . . . . .	102.12	0.8204 <sup>20</sup>
12	Hexylene (n.) . . . . .	$CH_3(CH_2)_3CH:CH_2$ . . . . .	84.10	0.6990 <sup>1</sup>
13	alcohol 2, 3 . . . . .	$CH_3(CH_2)_3CHOH.CH_2OH$ . . . . .	118.12	0.9669 <sup>0</sup>
14	Hexyl formate . . . . .	$HCO_2.C_6H_{13}$ . . . . .	130.12	0.898 <sup>0</sup>
15	Hippuric acid . . . . .	$C_6H_5CO.NHCH_2CO_2H$ . . . . .	179.11	
16	Homo-pyro-catechin . . . . .	$1:3:4CH_3.C_6H_3(OH)_2$ . . . . .	124.06	
17	Hydracrylic acid . . . . .	$OHCH_2.CH_2CO_2H$ . . . . .	90.05	
18	Hydrastin . . . . .	$C_{21}H_{21}NO_6$ . . . . .	383.21	
19	Hydrazo-benzene . . . . .	$C_6H_5NH.NHC_6H_5$ . . . . .	184.18	
20	benzoic acid (o.) . . . . .	$(CO_2H.C_6H_4NH)_2$ . . . . .	272.18	
21	“ “ (m.) . . . . .	$(CO_2H.C_6H_4NH)_2$ . . . . .	272.18	
22	“ “ (p.) . . . . .	$(CO_2H.C_6H_4NH)_2$ . . . . .	272.18	
23	toluene (o.) . . . . .	$(CH_3C_6H_4NH)_2$ . . . . .	212.21	
24	“ (m.) . . . . .	$(CHC_6H_4NH)_2$ . . . . .	212.21	
25	“ (p.) . . . . .	$(CH_3C_6H_4NH)_2$ . . . . .	212.21	0.957 <sup>15</sup>
26	Hydrindene (1, 2) . . . . .	$C_6H_4:C_2H_4:CH_2$ . . . . .	118.08	0.957 <sup>15</sup>
27	Hydrobenzoïn . . . . .	$(C_6H_5.CHOH)_2$ . . . . .	214.12	
28	Hydrocarbostyrl . . . . .	$C_9H_9NO$ . . . . .	147.11	
29	Hydrocinnamic acid . . . . .	$C_6H_5.CH_2.CH_2CO_2H$ . . . . .	150.08	1.0711 <sup>40</sup>
30	aldehyde . . . . .	$C_6H_5(CH_2)_2CHO$ . . . . .	134.08	
31	Hydrocyanic acid . . . . .	$HCN$ . . . . .	27.05	0.6969 <sup>18</sup>
32	Hydronapthoquinone(1,2) . . . . .	$C_{10}H_6(OH)_2$ . . . . .	160.06	
33	“ (1,4) . . . . .	$C_{10}H_6(OH)_2$ . . . . .	160.06	
34	Hydroquinone (p.) . . . . .	$C_6H_4(OH)_2$ . . . . .	110.05	1.326
35	dimethyl ether . . . . .	$C_6H_4(OCH_3)_2$ . . . . .	138.08	
36	ethyl ether . . . . .	$OH.C_6H_4.OC_2H_5$ . . . . .	138.08	
37	Hydroxy-anthraquinone (m.) . . . . .	$C_6H_4:(CO)_2:C_6H_3OH$ . . . . .	224.06	
38	benzalcohol (o.) . . . . .	$OH.C_6H_4.CH_2OH$ . . . . .	124.06	1.1613 <sup>25</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	0.2	.....	164°	264°	rhombic/al. .
2	.....	.....	.....	.....	69°	.....
3	.....	soluble	soluble	.....	58°	.....
4	.....	.....	.....	.....	64°	.....
5	s. soluble	.....	.....	.....	202-4°	.....
6	s. soluble	.....	.....	32.7-3.1°	216-7° C.	needles/w.
7	v. soluble	∞	∞	.....	137°	.....
8	insol.	.....	.....	.....	116-8°	oil. ....
9	.....	.....	.....	.....	129° C.	.....
10	.....	.....	.....	.....	169.2°	.....
11	s. soluble	∞	∞	.....	157° C.	.....
12	.....	.....	.....	.....	68-70°	.....
13	∞	soluble	soluble	.....	207°	.....
14	.....	.....	.....	.....	153.6°	.....
15	0.16°	s. soluble	s. soluble	187.5°	decom.	trimet. pris. .
16	v. soluble	v. soluble	v. soluble	51°	251-2°	.....
17	.....	.....	.....	.....	decomp.	syrup. ....
18	v. v. s. sol.	s. soluble	1.2	132°	.....	glit. trimet... prisms
19	insol.	5 <sup>16</sup>	.....	131°	decomp.	tablets. . [/al.
20	.....	soluble	.....	205°	.....	leaf. or pris.
21	insol.	s. soluble	sol. alkali	.....	.....	imperf. cryst.
22	insol.	s. soluble	sol. KOH	.....	.....	sm. need./al..
23	.....	soluble	soluble	165°	decomp.	leaflets. ....
24	.....	soluble	.....	.....	.....	.....
25	.....	v. soluble	v. soluble	126°	decomp.	tab. or need..
26	.....	.....	.....	.....	176-6.5° C.	oil. ....
27	0.25 <sup>15</sup>	soluble	.....	138°	300° +	moncl.tab./al.
28	v. v. s. sol.	soluble	soluble	163°	.....	glit. pris./al..
29	0.6 <sup>20</sup>	v. soluble	soluble	48.7°	279.8°	{ moncl. pris.
30	.....	.....	.....	.....	208°	{ /al.
31	∞	∞	∞	-14°	26.1°	.....
32	sol. alkali	.....	.....	abt. 60°	.....	leaflets. ....
33	mod. sol. hot	soluble	v. soluble	176°	.....	long needles .
34	5.85 <sup>15</sup>	v. soluble	v. soluble	169°	sub.	hex. pris./w..
35	insol.	.....	sol. bz.	55-6°	205°	large leaf./w.
36	s. soluble	v. soluble	v. soluble	66°	246-7°	thin leaflets..
37	v. v. s. sol.	mod. sol.	mod. sol.	302°	sub.	yel. leaf. or need./al.
38	6.7 <sup>22</sup>	v. sol.	v. sol., 1.95 bz. 18°	86°	sub. 100 up	rhomb. tab...

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Hydroxy-</b>			
1	benzalcohol (m.)	$\text{OH.C}_6\text{H}_4.\text{CH}_2\text{OH}$	124.06	
2	" (p.)	$\text{OH.C}_6\text{H}_4.\text{CH}_2\text{OH}$	124.06	
3	benzaldehyde (o.)	$\text{OHC}_6\text{H}_4.\text{CHO}$	122.05	1.1731 <sup>13</sup>
4	" (m.)	$\text{OHC}_6\text{H}_4.\text{CHO}$	122.05	
5	" (p.)	$\text{OHC}_6\text{H}_4.\text{CHO}$	122.05	
6	benzamide (o.)	$\text{OHC}_6\text{H}_4.\text{CONH}_2$	137.10	
7	" (m.)	$\text{OHC}_6\text{H}_4.\text{CONH}_2$	137.10	
8	" (p.)	$\text{OHC}_6\text{H}_4.\text{CONH}_2$	137.10	
9	benzoic acid (o.)	$\text{OHC}_6\text{H}_4.\text{CO}_2\text{H}$	138.05	
10	" (m.)	$\text{OHC}_6\text{H}_4.\text{CO}_2\text{H}$	138.05	1.473 <sup>4</sup>
11	" (p.)	$\text{OHC}_6\text{H}_4.\text{CO}_2\text{H}$	138.05	1.468 <sup>4</sup>
12	caprylic acid (α)	$\text{CH}_3(\text{CH}_2)_5\text{CH}(\text{OH})\text{CO}_2\text{H}$	160.13	
13	citric acid	$(\text{OH})_2\text{C}_2\text{H}_3(\text{CO}_2\text{H})_3$	208.06	
14	isophthalic acid (2)	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2 + \text{H}_2\text{O}$	200.07	
15	" (4)	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2$	182.05	
16	" (5)	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2$	182.05	
17	phthalic acid (3)	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2$	182.05	
18	" (4)	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2$	182.05	
19	" (2)	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2$	182.05	
20	purpurin	$\text{C}_{14}\text{H}_4\text{O}_2(\text{OH})_4$	272.06	
21	pyridine (α)	$\text{OH.C}_5\text{H}_4\text{N}$	95.08	
22	" (β)	$\text{OH.C}_5\text{H}_4\text{N}$	95.08	
23	" (γ)	$\text{OH.C}_5\text{H}_4\text{N} + \text{H}_2\text{O}$	113.10	
24	quinoline (bz. 1)	$\text{C}_9\text{H}_6\text{N.OH}$	145.04	
25	" (bz. 2)	$\text{C}_9\text{H}_6\text{N.OH}$	145.04	
26	" (bz. 3)	$\text{C}_9\text{H}_6\text{N.OH}$	145.04	
27	" (bz. 4)	$\text{C}_9\text{H}_6\text{N.OH}$	145.04	
28	" (pr. 2)	$\text{C}_9\text{H}_6\text{N.OH}$	145.04	
29	toluic acid (1:2:3)	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$	152.06	
30	" (1:2:4)	" + $\frac{1}{2}\text{H}_2\text{O}$	161.07	
31	" (1:2:5)	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$	152.06	
32	" (1:2:6)	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$	152.06	
33	" (1:3:2)	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$	152.06	
34	" (1:3:4)	" $\frac{1}{2}\text{H}_2\text{O}$	161.07	
35	" (1:3:5)	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$	152.06	
36	" (1:4:2)	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$	152.06	
37	" (1:4:3)	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$	152.06	
38	" (1:3:6)	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$	152.06	
39	Hyenic acid	$\text{CH}_3(\text{CH}_2)_{23}\text{CO}_2\text{H}$	382.40	
40	Hypogaecic acid	$\text{C}_{15}\text{H}_{29}\text{CO}_2\text{H}$	254.24	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. sol. hot	v. soluble	v. soluble	67°	abt.300dec.	needles.....
2	soluble	soluble	soluble	110°	.....	fine needles..
3	v. s. sol.	∞	∞	-20°	196.5° C.	oil.....
4	mod. sol.hot	v. soluble	soluble	104°	240° C.	needles/w....
5	s. soluble	v. soluble	v. soluble	115-6°	sub. undec.	needles/w....
6	soluble	.....	.....	139.9° C.	270° dec.	yellowish leaf.
7	s. soluble	v. soluble	v. soluble	170.5° C.	.....	thin leaf./w..
8	s. soluble	v. soluble	s. soluble	162°	.....	needles.....
9	0.225 <sup>15</sup>	49.63 <sup>15</sup>	50.47 <sup>15</sup>	158° C.	sub.	fine need./w.
10	0.93 <sup>18</sup>	.....	.....	200°	dist.	warty n./w..
11	0.8 <sup>15</sup>	v. soluble	v. soluble	210°	.....	monoclinic/w
12	v. s. sol.	v. soluble	v. soluble	69.5°	.....	large plates..
13	v. soluble	v. soluble	v. soluble	.....	.....	syrup.....
14	0.14; 2.5 <sup>100</sup>	v. soluble	v. soluble	239°	.....	long need./w.
15	0.03 <sup>24</sup>	v. v. sol.	v. soluble	305-6°	.....	long needles..
16	0.06; 18 <sup>100</sup>	v. soluble	v. soluble	288° C.	.....	needles.....
17	20 <sup>17</sup>	v. soluble	v. soluble	→anhyd.	.....	short pris./w
18	3 <sup>10</sup>	v. soluble	mod. sol.	181° dec.	.....	rosettes/w...
19	s. soluble	v. soluble	mod. sol.	no m.p.	sub.	powder.....
20	v. s. sol.	v. s. soluble	sol. acetone	>275°	sub.	br. red./acet.
21	v. soluble	v. soluble	mod. sol.	106-7°	280-1°	fine need./bz.
22	v. soluble	v. soluble	.....	129°	dist.	needles.....
23	100 <sup>15</sup>	v. soluble	v. s. sol.	anh.1485 C.	.....	moncl. pris. .
24	v. s. sol.	v. soluble	s. soluble	75-6°	266.6°C. <sup>752</sup>	prisms/dil. al.
25	s. soluble	v. soluble	.....	235-8°	sub.	prisms/al.
26	v. s. sol.	s. soluble	v. s. soluble	193°	>360°	small pris./al.
27	sol. alkali	.....	s. soluble	224°	.....	small leaflets.
28	v. s. sol.	v. soluble	v. soluble	199-200°	sub.	large pris./al.
29	mod. sol.	v. soluble	v. soluble	183°	.....	glit. need./w.
30	s. soluble	v. soluble	v. soluble	177-8°	.....	small need./w
31	s. soluble	v. soluble	v. soluble	172°	vol.in steam	large pris./w.
32	0.14 <sup>25</sup>	v. v. sol.	v. v. sol.	168°	.....	needles/w. . .
33	v. sol. hot	sol. chlo..	.....	163-4°	vol.in steam	long need./w.
34	sol. hot	v. soluble	v. soluble	172-3°	.....	needles/w....
35	mod. sol.	.....	.....	208°	sub.	tablets/w....
36	v. s. sol.	soluble	.....	177° C.	vol.in steam	moncl. pris/al
37	v. s. sol.	v. soluble	soluble	206-7° C.	sub.	long needles .
38	v. s. sol.	v. soluble	v. soluble	151°	vol.in steam	long need./w.
39	insol.	s. soluble	soluble	77-8°	.....	crystals.....
40	insol	v. soluble	soluble	33°	236° <sup>15</sup>	needles.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Indican.....	$C_{26}H_{31}NO_{17}$ .....	629.30	.....
2	Indigo.....	$C_6H_4 < \begin{smallmatrix} CO \\ NH \end{smallmatrix} > C: C < \begin{smallmatrix} CO \\ NH \end{smallmatrix} > C_6H_4$	262.16	1.35
3	dicarbonic acid.....	$C_{18}H_{10}N_2O_6$ .....	350.16	.....
4	disulphonic acid.....	$C_{16}H_8N_2O_2(SO_3H)_2$ .....	422.28	.....
5	purpurin.....	$C_{16}H_{10}N_2O_2$ .....	262.16	.....
6	sulphonic acid.....	$C_{10}H_9N_2O_2.SO_3H$ .....	342.22	.....
7	white.....	$C_{16}H_{12}N_2O_2$ .....	264.18	.....
8	Indirubin.....	$C_{16}H_{10}N_2O_2$ .....	262.16	.....
9	Indol.....	$C_8H_7N$ .....	117.10	.....
10	carbonic acid (pr. 2).....	$C_9H_7NO_2$ .....	161.10	.....
11	Indoxyl.....	$C_8H_6NOH$ .....	133.10	.....
12	Inosite (i.).....	$C_6H_{12}O_6 + 2H_2O$ .....	216.12	1.524 <sup>15</sup>
13	Inulin.....	$C_{12}H_{20}O_{10}$ .....	324.16	1.349 dry
14	Iodo-acetic acid.....	$CH_2I.CO_2H$ .....	186.00	.....
15	acetylene.....	$CH:Cl$ .....	151.98	.....
16	aniline (o.).....	$IC_6H_4NH_2$ .....	219.06	.....
17	" (m.).....	$IC_6H_4NH_2$ .....	219.06	.....
18	" (p.).....	$IC_6H_4NH_2$ .....	219.06	.....
19	benzamide (o.).....	$IC_6H_4NH_2$ .....	247.06	.....
20	" (m.).....	$IC_6H_4NH_2$ .....	247.06	.....
21	" (p.).....	$IC_6H_4NH_2$ .....	247.06	.....
22	benzene.....	$C_6H_5I$ .....	204.01	1.8321 <sup>12</sup>
23	" (K.).....	$C_6H_5I$ .....	204.01	1.8285 <sup>11</sup>
24	ethylene.....	$CH_2:CHI$ .....	154.00	2.08 <sup>0</sup>
25	propionic acid (α).....	$CH_3.CHI.CO_2H$ .....	200.01	.....
26	" " (β).....	$CH_2I.CH_2.CO_2H$ .....	200.01	.....
27	toluene (o.).....	$IC_6H_4.CH_3$ .....	218.03	1.697 <sup>20</sup>
28	" (m.).....	$IC_6H_4.CH_3$ .....	218.03	1.698 <sup>20</sup>
29	" (p.).....	$IC_6H_4.CH_3$ .....	218.03	.....
30	Iodoform.....	$CHI_3$ .....	393.92	4.09
31	Iodosobenzene.....	$C_6H_5IO$ .....	220.01	.....
32	Iodoxybenzene.....	$C_6H_5IO_2$ .....	236.01	.....
33	Isatane.....	$C_{32}H_{26}N_4O_6$ .....	562.37	.....
34	Isatine.....	$C_6H_4 < \begin{smallmatrix} CO \\ N \end{smallmatrix} > COH$ .....	147.08	.....
35	Isatine chloride.....	$C_8H_4ONCl$ .....	165.52	.....
36	Isatinic acid.....	$NH_2.C_6H_4.CO.CO_2H$ .....	165.10	.....



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. soluble	v. soluble	.....	.....	dec.	brown syrup.
2	insol.	insol.	insol.	.....	sub.	blue cryst. aniline
3	sol. H <sub>2</sub> SO <sub>4</sub>	insol.	insol.	.....	.....	deep blue pow
4	v. soluble	v. soluble	.....	.....	.....	blue amorph.
5	insol.	soluble	soluble	.....	sub.	choc. need. . .
6	soluble	soluble	.....	.....	dec. 200°	purple . . . . .
7	insol.	soluble	soluble	.....	.....	white mass. .
8	sol. gl. acet.	mod. sol.	.....	.....	sub.	choc. need./an
9	mod. sol. hot	v. soluble	v. soluble	52°	253-4°	leaflets. . . . .
10	mod. sol. hot	v. soluble	v. soluble	203°	.....	fine need./w.
11	sol. alkali	.....	.....	.....	not vol.	oil. . . . .
12	10 <sup>13</sup>	v. s. sol.	insol.	225° C.	319° in vac.	moncl./w. . . . .
13	0.02 <sup>14</sup>	v. s. sol.	.....	178° dec.	dec. 160°	v. fine cryst..
14	v. soluble	v. soluble	v. soluble	82°	.....	rhomb. tab. .
15	mod. sol.	.....	.....	.....	29-32°	.....
16	v. s. sol.	v. soluble	.....	56.5°	.....	fine needles. .
17	insol.	soluble	.....	25-7°	.....	leaflets. . . . .
18	insol.	soluble	.....	63°	.....	need. or pris..
19	soluble	.....	.....	183.6° C.	.....	needles. . . . .
20	s. soluble	.....	.....	186.5° C.	.....	.....
21	v. s. sol.	.....	.....	217.6° C.	.....	.....
22	insol.	soluble	.....	-29.8°	188.4° <sup>756</sup>	.....
23	insol.	soluble	∞	-28-9°	186.5-8.5°	usually red . .
24	.....	.....	.....	.....	56°	.....
25	s. soluble	soluble	soluble	.....	.....	oil. . . . .
26	v. s. sol.	v. soluble	v. soluble	82°	.....	leaflets. . . . .
27	insol.	.....	.....	.....	211°	.....
28	.....	.....	.....	.....	204°	.....
29	insol.	.....	.....	35	211.5°	leaflets. [tab.
30	insol.	soluble	soluble	119°	sub.	yel. hexag.
31	mod. sol.	mod. sol.	insol.	.....	explodes	amorphous . .
32	v. v. s. sol.	v. sol. bz.	v. sol. chlo.	.....	expl. 227-30°	long need./w.
33	insol.	soluble	soluble	.....	.....	warts. . . . .
34	s. soluble	soluble	s. soluble	200-1°	sub.	red. moncl. prisms
35	insol.	soluble	v. soluble	180° dec.	.....	brown need.
36	s. soluble	.....	.....	.....	dec.	crystals. . . . .

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Isatoic acid.....	$C_8H_5NO_3$ .....	163.08	.....
2	Isatoxime.....	$C_8H_5N_2O_2$ .....	162.13	.....
3	Isatronic acid.....	$C_{17}H_{14}O_2$ .....	250.12	.....
4	Isatyd.....	$C_{16}H_{12}N_2O_4$ .....	296.18	.....
5	Isoamyl-acetate.....	$C_2H_3O_2.C_5H_{11}$ .....	130.12	0.8762 <sup>18</sup>
6	“ “ (K.).....	$C_2H_3O_2.C_5H_{11}$ .....	130.12	0.867 <sup>11</sup>
7	alcohol.....	$(CH_3)_2CH.(CH_2)_2OH$ ....	88.10	0.8104 <sup>19</sup>
8	“ (K.).....	$(CH_3)_2CH.(CH_2)_2OH$ ....	88.10	0.810-.812 <sup>11</sup>
9	“ (sec.).....	$(CH_3)_2CH.CH(OH).CH_3$ ..	88.10	0.819 <sup>19</sup>
10	benzene.....	$C_6H_5.C_5H_{11}$ .....	148.13	0.885 <sup>18</sup>
11	benzoate.....	$C_6H_5CO_2.C_5H_{11}$ .....	192.13	0.9925 <sup>19</sup>
12	bromide.....	$C_5H_{11}Br$ .....	151.05	1.2058 <sup>22</sup>
13	butyrate.....	$C_3H_7CO_2.C_5H_{11}$ .....	158.15	0.8823 <sup>1</sup>
14	chloride.....	$(CH_3)_2CH(CH_2)_2Cl$ ....	106.54	0.8625 <sup>25</sup>
15	cyanide.....	$(CH_3)_2CH(CH_2)_2CN$ ....	97.13	0.8061 <sup>20</sup>
16	formate.....	$HCO_2.C_5H_{11}$ .....	116.10	0.8944 <sup>1</sup>
17	iodide.....	$(CH_3)_2CH(CH_2)_2I$ ....	198.06	1.4734 <sup>20</sup>
18	isocyanide.....	$(CH_3)_2CH(CH_2)_2NC$ ....	97.13	<1
19	isovalerate.....	$C_5H_9O_2.C_5H_{11}$ .....	172.16	0.8700 <sup>0</sup>
20	“ (K.).....	$C_5H_9O_2.C_5H_{11}$ .....	172.16	0.855 <sup>11</sup>
21	mustard oil.....	$C_5H_{11}N.CS$ .....	129.19	0.9419 <sup>17</sup>
22	nitrate.....	$C_5H_{11}NO_3$ .....	133.13	1.000 <sup>7.5</sup>
23	nitrite.....	$C_5H_{11}NO_2$ .....	117.13	0.880 <sup>15</sup>
24	phenol (p.).....	$C_5H_{11}.C_6H_4OH$ .....	164.13	.....
25	phenylketone.....	$C_5H_{11}.CO.C_6H_5$ .....	176.13	.....
26	propionate.....	$C_2H_5CO_2.C_5H_{11}$ .....	144.13	0.8877 <sup>1</sup>
27	sulphide.....	$(C_5H_{11})_2S$ .....	174.24	0.843 <sup>19</sup>
28	Isoanthracene.....	$C_{14}H_{10}$ .....	178.08	.....
29	Isoanthraquinone.....	$C_{14}H_8O_2$ .....	208.06	.....
30	Isobutane.....	$(CH_3)_2CHCH_3$ .....	58.08	.....
31	Isobutyl-acetate.....	$C_2H_3O_2.C_4H_9$ .....	116.10	0.8921 <sup>1</sup>
32	alcohol.....	$(CH_3)_2CH.CH_2OH$ .....	74.08	0.8003 <sup>18</sup>
33	“.....	$(CH_3)_2CH.CH_2OH$ .....	74.08	0.7995 <sup>11</sup>
34	aldehyde.....	$(CH_3)_2CH.CHO$ .....	72.06	0.7938 <sup>19</sup>
35	amine.....	$(CH_3)_2CHCH_2NH_2$ .....	73.13	0.7363
36	benzene.....	$C_6H_5.C_4H_9$ .....	134.12	0.8578 <sup>15</sup>
37	benzoate.....	$C_6H_5CO.C_4H_9$ .....	178.12	1.0018 <sup>15</sup>
38	butyrate.....	$C_3H_7CO_2.C_4H_9$ .....	144.13	0.8876 <sup>1</sup>
39	chloride.....	$(CH_3)_2CH_2CH_2Cl$ .....	92.52	0.8836 <sup>15</sup>
40	cyanide.....	$(CH_3)_2CHCH_2CN$ .....	83.11	0.8069 <sup>20</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	sol. acetone	s. soluble	s. soluble	230° dec.	.....	small need./a.
2	v. s. sol.	soluble	s. KOH	202° dec.	.....	long yel. need.
3	v. v. s. sol.	v. soluble	v. soluble	156-7°	dec.	leaflets/dil. al.
4	v. v. s. sol.	v. s. sol.	.....	237-7.5°	dec.	micro. cryst..
5	s. soluble	∞	∞	.....	139°	.....
6	v. v. s. sol.	∞	∞	.....	138-42°	colorless ....
7	3.29 <sup>22</sup>	∞	∞	-134°	131.6°	.....
8	2.5 <sup>25</sup>	∞	∞	.....	130-2°	colorless.....
9	.....	.....	.....	.....	112.5°	.....
10	.....	.....	.....	.....	193°	.....
11	.....	.....	.....	.....	261-2°	.....
12	insol.	soluble	.....	.....	118.6°	.....
13	s. soluble	v. soluble	v. soluble	.....	178.6°	.....
14	insol.	soluble	.....	.....	100.9° C.	.....
15	.....	.....	.....	.....	155°	.....
16	.....	.....	.....	.....	123.3°	.....
17	.....	soluble	.....	.....	148.2° C.	.....
18	insol.	soluble	.....	.....	137°	.....
19	.....	.....	.....	.....	194°	.....
20	v. v. s. sol.	soluble	∞	.....	191-3°	colorless.....
21	.....	.....	.....	.....	183-4°	.....
22	.....	.....	.....	.....	147-8°	.....
23	insol.	soluble	soluble	.....	99°	.....
24	v. s. sol. hot	.....	.....	92-3°	255°	long need./w.
25	.....	.....	.....	.....	241.5-2.5°	.....
26	.....	.....	.....	.....	160.2°	.....
27	.....	.....	.....	.....	216°	.....
28	.....	s. soluble	s. soluble	133.5-4.5°	.....	pearly leaflets
29	.....	.....	.....	211-2°	.....	pale yel. need.
30	.....	.....	.....	.....	-11.5°	.....
31	s. soluble	∞	∞	.....	116.3	.....
32	soluble	∞	∞	.....	108.4°	.....
33	9.55 <sup>18</sup>	∞	∞	.....	105.5-6.5°	colorless ....
34	9.0	.....	.....	.....	63-4°	.....
35	∞	.....	.....	.....	68-9°	.....
36	.....	.....	.....	.....	170-0.5° C.	.....
37	.....	.....	.....	.....	237°	.....
38	.....	.....	.....	.....	156.9°	.....
39	.....	.....	.....	.....	68.5°	.....
40	s. soluble	.....	.....	.....	129°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Isobutyl-</b>			
1	ether.....	$(C_4H_9)_2O$ .....	146.15	0.7616 <sup>15</sup>
2	formate.....	$HCO_2.C_4H_9$ .....	102.08	0.9049 <sup>2</sup>
3	iodide.....	$(CH_3)_2CH.CH_2.I$ .....	184.04	1.6138 <sup>15</sup>
4	ketone.....	$(C_4H_9)_2CO$ .....	142.15	0.833 <sup>20</sup>
5	mustard oil.....	$C_4H_9.NCS$ .....	115.17	0.9638 <sup>14</sup>
6	phenylketone.....	$C_4H_9.CO.C_6H_5$ .....	162.11	0.993 <sup>17</sup>
7	Isobutyric acid.....	$(CH_3)_2CH.CO_2H$ .....	88.06	0.9487 <sup>2</sup>
8	“ “ (K.).....	$(CH_3)_2CH.CO_2H$ .....	88.06	0.946 <sup>11</sup>
9	anhydride.....	$[(CH_3)_2CHCO]_2O$ .....	158.12	0.9574 <sup>16</sup>
10	Isocaproic acid.....	$(CH_3)_2CH.(CH_2)_2.CO_2H$ ..	116.10	0.925 <sup>20</sup>
11	Isocinchromeronic ac.....	2: 5, $C_5H_3N(CO_2H)_2 + H_2O$	185.10	.....
12	Isocinnamic acid.....	$C_6H_5CH:CH.CO_2H$ .....	148.06	.....
13	Isocitric acid.....	$C_6H_8O_7 + H_2O$ .....	210.08	.....
14	Isocymene (m.).....	$CH_3.C_6H_4.CH(CH_3)_2$ .....	134.12	0.862 <sup>20</sup>
15	Isocrotonic acid.....	$CH_3.CH:HC.CO_2H$ .....	86.05	1.0312 <sup>18</sup>
16	Isodulcite.....	$CH_3(CHOH)_4CHO + H_2O$	182.12	1.4708 <sup>2</sup>
17	Isodurene.....	1: 2: 3: 5 $C_6H_2(CH_3)_4$ .....	134.12	0.8961 <sup>2</sup>
18	Isoengenol 1: 3: 4.....	$CH_3.CH:CHC_6H_3(OH)_2$	164.10	1.080 <sup>16</sup>
19	Isoheptane.....	$(CH_3)_2CH(CH_2)_3CH_3$ .....	100.13	0.6819 <sup>17</sup>
20	Isoheptoic acid.....	$(CH_3)_2CH(CH_2)_3CO_2H$ ..	130.12	0.9122 <sup>19</sup>
21	Isohydrobenzoin.....	$C_{14}H_{12}(OH)_2$ .....	214.12	.....
22	Isohydronaphthoquinone	$C_{10}H_8O_2$ .....	160.06	.....
23	Isohexane.....	$(CH_3)_2CH(CH_2)_2CH_3$ .....	86.12	0.677 <sup>0</sup>
24	Isohexylaldehyde.....	$(CH_3)_2CH(CH_2)_2CHO$ .....	100.10	.....
25	Isomalic acid.....	$C_4H_6O_5$ .....	134.05	.....
26	Isomannid.....	$C_6H_{10}O_4$ .....	146.08	.....
27	Isonicotinic acid.....	$C_5H_4N.CO_2H$ .....	123.08	.....
28	Isopentane.....	$(CH_3)_2CHCH_2CH_3$ .....	72.10	0.6282 <sup>14</sup>
29	Isophthalic acid (m.).....	$C_6H_4(CO_2H)_2$ .....	166.05	.....
30	aldehyde (m.).....	$C_6H_4(CHO)_2$ .....	134.05	.....
31	nitril (m.).....	$C_6H_4(CN)_2$ .....	128.11	.....
32	Isoprene.....	$CH_2:CH.C(CH_3):CH_2$ ...	68.06	0.6823 <sup>20</sup>
33	Isopropyl-acetate.....	$CH_3CO_2.CH(CH_3)_2$ .....	102.08	0.9166 <sup>0</sup>
34	acetylene.....	$(CH_3)_2CH.C:CH$ .....	68.06	0.6854 <sup>0</sup>
35	alcohol.....	$CH_3.CH(OH).CH_3$ .....	60.06	0.789 <sup>2</sup>
36	“ (K.).....	$CH_3.CH(OH).CH_3$ .....	60.06	0.796 <sup>11</sup>
37	amine.....	$(CH_3)_2CHNH_2$ .....	59.11	0.690 <sup>18</sup>
38	benzoate.....	$C_6H_5CO_2CH(CH_3)_2$ .....	164.10	1.013 <sup>25</sup>
39	benzoic acid (o.).....	$(CH_3)_2CH.C_6H_4.CO_2H$ ...	164.10	.....
40	cyanide.....	$(CH_3)_2CHCN$ .....	69.10	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	soluble	∞	∞	.....	122-2.5°	.....
2	1.01	.....	.....	.....	98.5°	.....
3	.....	.....	.....	.....	120.0° C.	.....
4	insol.	.....	.....	.....	181-2°	.....
5	.....	.....	.....	.....	162°	.....
6	.....	.....	.....	.....	225-6°	.....
7	20 <sup>20</sup>	∞	∞	-79°	155.5°	.....
8	∞	∞	∞	-79°	153-4.5°	.....
9	insol.	.....	.....	.....	182.5°	.....
10	s. soluble	soluble	soluble	> -18°	199.7° <sup>732</sup>	.....
11	v. v. s. sol.	v. s. sol.	v. s. sol.	236°	sub.	v. sm. cryst..
12	s. soluble	v. soluble	v. soluble	57°	265° dec.	moncl. pris.
13	v. s. sol.	v. s. sol.	v. s. sol.	→anh. 100°	.....	prisms. [./lig.
11	.....	.....	.....	< -25°	175-6°	.....
15	40	.....	.....	15.5°	171.9° dec.	long needles..
16	57.11 <sup>19</sup>	54 meth. al.	.....	92-3°	.....	large mon./w.
17	.....	soluble	.....	low	195-7°	.....
18	.....	soluble	.....	abt. -10°	258-62°	.....
19	.....	soluble	soluble	.....	90.3°	.....
20	.....	.....	.....	.....	209°	.....
21	0.2 <sup>15</sup>	v. soluble	v. soluble	119.5°	.....	mon. pris./ w.
22	.....	soluble	soluble	unstable	.....	small needles
23	.....	soluble	soluble	.....	62°	.....
24	s. soluble	soluble	.....	.....	121° <sup>743</sup>	.....
25	v. soluble	v. soluble	v. soluble	abt. 140° d.	dec. 160°	monoclinic...
26	v. soluble	mod. sol.	insol.	87°	274°	monoclinic...
27	s. soluble	v. v. s. sol.	v. s. sol.	309.5°	.....	needles.....
28	.....	.....	.....	< -24°	30.5-1.5°	.....
29	0.013 <sup>25</sup>	mod. sol.	.....	< 300°	sub.	long need./w.
30	.....	.....	.....	89-90°	.....	long needles .
31	s. sol. hot	sol. hot	.....	156°	.....	fine needles..
32	.....	.....	.....	.....	35.8°	.....
33	s. soluble	∞	∞	.....	90-3°	.....
34	.....	.....	.....	.....	28-9° <sup>751</sup>	.....
35	∞	∞	∞	.....	82.85° C.	.....
36	∞	∞	∞	.....	81-3°	.....
37	∞	.....	.....	.....	31.5° <sup>743</sup>	.....
38	.....	.....	.....	.....	218° dec.	.....
39	sol. hot	.....	.....	51°	.....	prisins/w....
40	.....	.....	.....	.....	107-8°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Isopropyl-ether (K.) . . . . .	$[(CH_3)_2CH]_2O$ . . . . .	102.12	0.7247 <sup>21</sup>
2	ethylene . . . . .	$(CH_3)_2CH.CH:CH_2$ . . . . .	70.08	.....
3	hexyl ketone . . . . .	$C_3H_7.CO.C_6H_{13}$ . . . . .	156.16	0.841 <sup>17</sup>
4	isocyanide . . . . .	$(CH_3)_2CH.NC$ . . . . .	69.09	0.7596 <sup>0</sup>
5	ketone . . . . .	$[(CH_3)_2CH]_2CO$ . . . . .	114.12	0.8062 <sup>30</sup>
6	phenylketone . . . . .	$(CH_3)_2CH.CO.C_6H_5$ . . . . .	148.10	.....
7	pyridine ( $\alpha$ ) . . . . .	$(CH_3)_2CH.C_5H_4N$ . . . . .	121.13	0.9342 <sup>0</sup>
8	" ( $\gamma$ ) . . . . .	$(CH_3)_2CH.C_5H_4N$ . . . . .	121.13	0.9439 <sup>0</sup>
9	sulphide . . . . .	$[(CH_3)_2CH]_2S$ . . . . .	118.18	.....
10	Isoquinoline . . . . .	$(2)C_9H_7N$ . . . . .	129.10	1.0986 <sup>30</sup>
11	Isosaccharic acid . . . . .	$C_6H_{10}O_8$ . . . . .	210.08	.....
12	Isosuccinic acid . . . . .	$CH_3CH(CO_2H)_2$ . . . . .	118.05	1.455
13	Isovaleric acid . . . . .	$(CH_3)_2CHCH_2CO_2H$ . . . . .	102.08	0.931 <sup>20</sup>
14	" " (K.) . . . . .	$(CH_3)_2CHCH_2CO_2H$ . . . . .	102.08	0.929 <sup>44</sup>
15	aldehyde . . . . .	$(CH_3)_2CH.CH_2CHO$ . . . . .	86.08	0.8040 <sup>15</sup>
16	amide . . . . .	$(CH_3)_2CH.CH_2.CONH_2$ . . . . .	101.13	.....
17	Itaconic acid . . . . .	$CH_2:C(CO_2H).CH_2CO_2H$ . . . . .	130.05	1.573–1.632
18	Ketobutyric acid . . . . .	$CH_3CH_2.CO.CO_2H$ . . . . .	102.05	1.200 <sup>17</sup>
19	Ketoheptamethylene . . . . .	$CO(CH_2)_6$ . . . . .	112.10	0.9685 <sup>0</sup>
20	Ketopentamethylene . . . . .	$CO(CH_2)_4$ . . . . .	84.06	0.9416 <sup>31</sup>
21	Lactamide . . . . .	$CH_3.CHOH.CONH_2$ . . . . .	89.10	.....
22	Lactic acid (i.) . . . . .	$CH_3.CHOH.CO_2H$ . . . . .	90.05	1.2485 <sup>18</sup>
23	anhydride . . . . .	$C_6H_{10}O_5$ . . . . .	162.08	.....
24	Lactid . . . . .	$C_6H_8O_4$ . . . . .	144.06	.....
25	Lactyl urea . . . . .	$C_4H_5N_2O_2 + H_2O$ . . . . .	131.14	.....
26	Laevulin . . . . .	$C_6H_{10}O_5$ at 100° . . . . .	162.08	.....
27	Laevulinic acid . . . . .	$CH_3.CO.(CH_2)_2CO_2H$ . . . . .	116.06	1.135 <sup>15</sup>
28	aldehyde . . . . .	$CH_3.CO.(CH_2)_2CHO$ . . . . .	100.06	1.0156 <sup>16</sup>
29	Lauric acid . . . . .	$C_{11}H_{23}.CO_2H$ . . . . .	200.20	0.883 <sup>20</sup>
30	aldehyde . . . . .	$C_{11}H_{23}.CHO$ . . . . .	172.20	.....
31	Lead tetraethyl . . . . .	$Pb(C_2H_5)_4$ . . . . .	322.96	1.62
32	tetramethyl . . . . .	$Pb(CH_3)_4$ . . . . .	267.00	2.034 <sup>0</sup>
33	Lecithin (protagon) . . . . .	$C_{42}H_{84}NPO_9$ . . . . .	777.71	.....
34	Lepidine . . . . .	py.4, $C_9H_6N.CH_3$ . . . . .	143.11	1.0862 <sup>20</sup> . . . . .
35	Leucine . . . . .	$CH_3(CH_2)_3CH(NH_2)CO_2H$ . . . . .	131.15	1.293 <sup>18</sup>
36	Leucinic acid . . . . .	$CH_3(CH_2)_3CH(OH).CO_2H$ . . . . .	132.10	.....
37	Leukaniline . . . . .	$(NH_2C_6H_4)_2CHC_6H_3(NH_2)$ . . . . .	303.29	.....
38	" (o.) . . . . .	$CH(C_6H_4NH_2)_3$ . . . . .	289.28	.....
39	" (p.) . . . . .	$CH(C_6H_4NH_2)_3$ . . . . .	289.28	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	.....	.....	69° C.	.....
2	.....	.....	.....	.....	21.1–1.3°	.....
3	.....	.....	.....	.....	200–10°	.....
4	.....	.....	.....	.....	87°	.....
5	.....	.....	.....	.....	123.7°	.....
6	.....	.....	.....	.....	217°	.....
7	s. soluble	.....	.....	.....	158–9°	.....
8	.....	.....	.....	.....	177–8°	.....
9	insol.	soluble	soluble	.....	120.5° <sup>763</sup>	.....
10	.....	.....	.....	24.6°	240°	.....
11	v. soluble	v. soluble	s. soluble	185°	.....	rhombic.....
12	44.3°	v. sol.	v. sol.	135° dec.	sub.	prisms.....
13	{ 91.5° <sup>50</sup> 4.2° <sup>20</sup>	∞	∞	–51°	176.3° C.	.....
14	s. soluble	∞	∞	–51°	173–6°	.....
15	s. soluble	soluble	soluble	–51°	92.5°	.....
16	soluble	soluble	soluble	126–7°	230–2°	.....
17	8.3° <sup>20</sup>	25° <sup>15</sup>	s. soluble	161° dec.	not in steam	rhombic.....
18	.....	.....	.....	.....	78° <sup>25</sup>	oil.....
19	.....	.....	.....	.....	180°	oil.....
20	.....	.....	.....	.....	130–0.5° C.	.....
21	v. soluble	v. soluble	.....	74°	.....	crystals.....
22	∞	∞	s. soluble	< –24°	83° <sup>1</sup> mm	syrup.....
23	v. s. sol.	v. soluble	v. soluble	dec. 250–60	.....	amorphous ..
24	v. s. sol.	v. s. sol.	.....	124.5°	255°	moncl.tab./al
25	v. soluble	v. soluble	v. v. s. sol.	anhy. 145°	.....	rhomb. prism
26	deliq.	s. soluble	insol.	140–5° dec.	.....	amorphous ..
27	∞	v. soluble	v. soluble	32.5–3°	239°	leaflets.....
28	∞	∞	∞	< –21°	186–8° dec.	.....
29	insol.	soluble	soluble	43.6°	225° <sup>100</sup>	needles/al....
30	.....	.....	.....	44.5°	184–5° <sup>100</sup>	leaflets.....
31	insol.	.....	.....	.....	200°	.....
32	.....	.....	.....	.....	110°	.....
33	insol.	soluble	soluble	.....	dec.	waxy.....
34	insol.	∞	∞	< 0°	261–3°	.....
35	2.2° <sup>18</sup>	0.06° <sup>17</sup>	.....	sub. 170°	dec.	leaflets.....
36	v. soluble	v. soluble	v. soluble	73°	sub. 100°+	pris. or need..
37	s. sol. hot	v. soluble	s. soluble	100°	.....	sm. cryst./w.
38	.....	soluble	.....	165°	.....	brown cryst.
39	.....	soluble	.....	148°	.....	leaflets [al.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Leukaurine . . . . .	$\text{CH}(\text{C}_6\text{H}_4\text{OH})_3$ . . . . .	292.13	.....
2	Linoleic acid . . . . .	$\text{C}_{18}\text{H}_{32}\text{O}_2$ . . . . .	252.23	0.9206 <sup>14</sup>
3	Lophin . . . . .	$\text{C}_{21}\text{H}_{16}\text{N}_2$ . . . . .	296.21	.....
4	Lutidene (a) . . . . .	$(\text{CH}_3)_2\text{C}_5\text{H}_3\text{N}$ . . . . .	107.11	0.9467 <sup>0</sup>
5	“ (2, 4) . . . . .	$(\text{CH}_3)_2\text{C}_5\text{H}_3\text{N}$ . . . . .	107.11	0.9493 <sup>2</sup>
6	“ (2, 6) . . . . .	$(\text{CH}_3)_2\text{C}_5\text{H}_3\text{N}$ . . . . .	107.11	0.9420 <sup>0</sup>
7	“ (3, 4) . . . . .	$(\text{CH}_3)_2\text{C}_5\text{H}_3\text{N}$ . . . . .	107.11	.....
8	Lutidinic acid . . . . .	$\text{C}_5\text{H}_3\text{N}(\text{CO}_2\text{H})_2 + \text{H}_2\text{O}$ . . . . .	185.10	.....
9	Maleic acid . . . . .	$\text{CO}_2\text{H}.\text{CH}:\text{CH}.\text{CO}_2\text{H}$ . . . . .	116.03	1.590
10	anhydride . . . . .	$\text{C}_4\text{H}_2\text{O}_3$ . . . . .	98.02	.....
11	Malic acid (i.) . . . . .	$\text{CO}_2\text{H}.\text{CH}_2.\text{CHOH}.\text{CO}_2\text{H}$ . . . . .	134.04	1.601 <sup>2</sup>
12	“ “ (l.) . . . . .	$\text{CO}_2\text{H}.\text{CH}_2.\text{CHOH}.\text{CO}_2\text{H}$ . . . . .	134.04	1.559 <sup>0</sup>
13	Malonic acid . . . . .	$\text{CO}_2\text{H}.\text{CH}_2.\text{CO}_2\text{H}$ . . . . .	104.03	.....
14	“ “ (K.) . . . . .	$\text{CO}_2\text{H}.\text{CH}_2.\text{CO}_2\text{H}$ . . . . .	104.03	.....
15	Maltose . . . . .	$\text{C}_{12}\text{H}_{22}\text{O}_{11} + \text{H}_2\text{O}$ . . . . .	360.19	1.540 <sup>17</sup>
16	Mandelic acid . . . . .	$\text{C}_6\text{H}_5.\text{CHOH}.\text{CO}_2\text{H}$ . . . . .	152.06	1.361 <sup>4</sup>
17	Mannid . . . . .	$\text{C}_6\text{H}_{10}\text{O}_4$ . . . . .	146.08	.....
18	mannite (d.) . . . . .	$\text{CH}_2\text{OH}(\text{CHOH})_4\text{CH}_2\text{OH}$ . . . . .	182.12	1.521 <sup>13</sup>
19	hexanitrate . . . . .	$\text{CH}_2\text{NO}_3(\text{CHNO}_3)_4$ $\text{CH}_2\text{NO}_3$ . . . . .	452.30	1.604 <sup>0</sup>
20	Mannoheptite . . . . .	$\text{C}_7\text{H}_{16}\text{O}_7$ . . . . .	212.13	.....
21	Mannoheptose (d.) . . . . .	$\text{C}_6\text{H}_7(\text{OH})_6\text{CHO}$ . . . . .	210.12	.....
22	Mannose (d.) . . . . .	$\text{C}_6\text{H}_{12}\text{O}$ . . . . .	180.10	.....
23	Margaric acid . . . . .	$\text{C}_{16}\text{H}_{33}\text{CO}_2\text{H}$ . . . . .	270.27	.....
24	Meconic acid . . . . .	$\text{OHC}_5\text{HO}_2(\text{CO}_2\text{H})_2 + 3\text{H}_2\text{O}$ . . . . .	254.08	.....
25	Meconine . . . . .	$\text{C}_{10}\text{H}_{10}\text{O}_4$ . . . . .	194.08	.....
26	Melam . . . . .	$\text{C}_6\text{H}_9\text{N}_{11}$ . . . . .	235.51	.....
27	Melamine . . . . .	$(\text{CN}.\text{NH}_2)_3$ . . . . .	126.29	.....
28	Melene . . . . .	$\text{C}_{30}\text{H}_{60}$ . . . . .	420.48	0.89
29	Melissic acid . . . . .	$\text{C}_{29}\text{H}_{50}\text{CO}_2\text{H}$ . . . . .	452.48	.....
30	Mellitic . . . . .	$\text{C}_6(\text{CO}_2\text{H})_6$ . . . . .	342.05	.....
31	Menthon (l.) . . . . .	$\text{C}_{10}\text{H}_{18}\text{O}$ . . . . .	154.15	0.8972 <sup>20</sup>
32	Mercuric cyanide . . . . .	$\text{Hg}(\text{CN})_2$ . . . . .	252.08	4.0026 <sup>22</sup>
33	mercaptide . . . . .	$(\text{C}_2\text{H}_5\text{S})_2\text{Hg}$ . . . . .	322.20	.....



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	s. soluble	v. soluble	sol. acet.	.....	.....	white pris. /acet.
2	insol.	.....	.....	< -18°	.....	yellow oil....
3	insol.	0.88 <sup>21</sup>	0.32 <sup>20</sup>	275°	.....	needles.....
4	25; less hot	.....	.....	.....	156°	.....
5	20; less hot	.....	.....	.....	157°	.....
6	∞ cold: less hot	.....	.....	.....	142-3°	.....
7	.....	.....	.....	.....	163.5-4.5	.....
8	mod. sol.	soluble	insol.	239-40°	.....	tab. or leaf...
9	50 <sup>10</sup>	soluble	soluble	130°	dec.	moncl. prisms
10	.....	.....	.....	60°	202° C.	trimetric....
11	soluble	.....	.....	130-1°	.....	.....
12	deliq.	s. soluble	s. soluble	100°	decomp.	needles.....
13	73.5 <sup>20</sup> ; 102.3 <sup>65</sup>	soluble	8.0 <sup>15</sup>	132°	decomp.	triclinic....
14	139.37 <sup>15</sup>	soluble	soluble	132-3° dec	.....	triclin. leaf...
15	soluble	s. soluble	.....	.....	.....	fine needles..
16	15.97 <sup>15</sup>	soluble	soluble	118°	dec.	large rhombic
17	v. soluble	v. soluble	.....	.....	297-317°	syrup.....
18	15.6 <sup>18</sup>	0.07 <sup>14</sup>	insol.	166°	290-5 <sup>3-3.5</sup>	rhombic pris.
19	insol.	2.9 <sup>13</sup>	4°	112-3°	exp. 120°	needles.....
20	6.3 <sup>14</sup>	v. s. sol.	.....	188° C.	.....	small needles
21	v. soluble	s. soluble	.....	134-5° C.	.....	v. fine need. /al.
22	248 <sup>17</sup>	0.4 <sup>17.5</sup> abs	insol.	132°	.....	rhombic/al. .
23	insol.	soluble	soluble	59.9°	227° <sup>100</sup>	crystals.....
24	s. sol.; 25 <sup>100</sup>	v. sol.	s. soluble	.....	.....	rhomb. tab ..
25	0.14; 4.5 <sup>100</sup>	.....	.....	102-2.5°	sub.	glit. needles..
26	insol.	sol. KOH	.....	.....	.....	orange powd.
27	s. soluble	s. soluble	insol.	.....	.....	monoclinic...
28	.....	0.13; 3.6 <sup>78</sup> abs.	.....	62°	370-80°	crystals ....
29	insol.	v. s. sol.	v. s. sol.	91°	.....	silky scales..
30	v. v. sol.	soluble	sol. H <sub>2</sub> SO <sub>4</sub>	286-8°	dec.	fine silky nee.
31	insol.	∞	∞ CS <sub>2</sub> & bz.	.....	206.3° C.	.....
32	mod. sol.	10.1 <sup>19</sup>	44.2 <sup>19</sup> wood al.	dec. 320- 400°	.....	quad. prisms.
33	.....	v. s. sol; 8 <sup>78</sup>	.....	76-7°	dec.	leaflets/al....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Mercuric ethyl. ....	$\text{Hg}(\text{C}_2\text{H}_5)_2$ .....	258.08	2.444
2	fulminate. ....	$\text{C}_2\text{N}_2\text{HgO}_2 + \frac{1}{2}\text{H}_2\text{O}$ .....	293.09	44.42 anhy.
3	methyl. ....	$\text{Hg}(\text{CH}_3)_2$ .....	230.05	3.069
4	naphthyl. ....	$\text{Hg}(\text{C}_{10}\text{H}_7)_2$ .....	454.12	1.929
5	phenyl. ....	$\text{Hg}(\text{C}_6\text{H}_5)_2$ .....	354.08	2.318
6	Mesaconic acid. ....	$\text{CH}_3(\text{CO}_2\text{H})\text{C}:\text{CHCO}_2\text{H}$ ..	130.05	.....
7	Mesitol 1: 3: 5: 2. ....	$(\text{CH}_3)_3\text{C}_6\text{H}_2\text{OH}$ .....	136.10	.....
8	Mesitylene 1: 3: 5. ....	$\text{C}_6\text{H}_3(\text{CH}_3)_3$ .....	120.10	0.8694 <sup>19</sup>
9	Mesitylinic acid. ....	$(\text{CH}_3)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ .....	150.08	.....
10	Mesityl oxide. ....	$(\text{CH}_3)_2\text{C}:\text{CHCOCH}_3$ .....	98.08	0.8566 <sup>18</sup>
11	Mesotartaric acid. ....	$(\text{HO})_2\text{C}_2\text{H}_2(\text{CO}_2\text{H})_2 + \text{H}_2\text{O}$	168.06	.....
12	Mesoxalic acid. ....	$(\text{OH})_2\text{C}(\text{CO}_2\text{H})_2$ .....	136.03	.....
13	Metaldehyde. ....	$(\text{C}_2\text{H}_4\text{O})_3$ .....	132.10	.....
14	Metastyrene. ....	$(\text{C}_8\text{H}_8)_x$ .....	104.06	1.05413
15	Methane. ....	$\text{CH}_4$ .....	16.03	0.559(A): 0.415
16	Methoxy-benzamide (o.)	$\text{CH}_3\text{O.C}_6\text{H}_4\text{CO.NH}_2$ .....	151.11	.....
17	“ (p.)	$\text{CH}_3\text{O.C}_6\text{H}_4\text{CO.NH}_2$ .....	151.11	.....
18	benzoic acid (o.) .....	$\text{CH}_3\text{O.C}_6\text{H}_4\text{CO}_2\text{H}$ .....	152.06	1.180 <sup>16</sup>
19	“ “ (m.) .....	$\text{CH}_3\text{O.C}_6\text{H}_4\text{CO}_2\text{H}$ .....	152.06	.....
20	Methyl-acetanilid. ....	$\text{C}_2\text{H}_5\text{O.N}(\text{CH}_3)\text{C}_6\text{H}_5$ .....	149.13	.....
21	acetate. ....	$\text{CH}_3\text{CO}_2.\text{CH}_3$ .....	74.05	0.9410 <sup>14</sup>
22	aceto-acetic ether. ....	$\text{CH}_3\text{COCH}(\text{CH}_3)\text{CO}_2\text{C}_2\text{H}_5$	144.10	1.009 <sup>6</sup>
23	acrylate. ....	$\text{C}_3\text{H}_3\text{O}_2.\text{CH}_3$ .....	86.05	0.973 <sup>0</sup>
24	acrylic acid. ....	$\text{CH}_2:\text{C}(\text{CH}_3)\text{CO}_2\text{H}$ .....	86.05	1.0153 <sup>19</sup>
25	Methylal. ....	$\text{HCH}(\text{OCH}_3)_2$ .....	76.06	0.8604 <sup>19</sup>
26	“ (K.) .....	$\text{HCH}(\text{OCH}_3)_2$ .....	76.06	0.855 <sup>11</sup>
27	Methyl alcohol. ....	$\text{CH}_3\text{OH}$ .....	32.03	0.7984 <sup>15</sup>
28	“ “ (K.) .....	$\text{CH}_3\text{OH} \dots \dots \dots [(\text{OH})_2]$	32.03	0.789 <sup>11</sup>
29	alizarine. ....	$\text{C}_6\text{H}_4(\text{CO})_2\text{C}_6\text{H}(\text{CH}_3)$	254.08	.....
30	allyl carbinol. ....	$\text{CH}_2:\text{CH.CH}_2.\text{CH}(\text{OH}).$	86.08	0.834 <sup>19</sup>
31	“ ether. ....	$\text{CH}_3\text{OC}_3\text{H}_5 \dots \dots \dots [\text{CH}_3$	72.06	0.77 <sup>11</sup>
32	amine. ....	$\text{CH}_3\text{NH}_2$ .....	31.08	0.699— <sup>11</sup>
33	“ (K.) .....	$\text{CH}_3\text{NH}_2$ .....	31.08	0.699— <sup>10.8</sup> <sub>15</sub>
34	amyl ketone. ....	$\text{CH}_3.\text{CO.C}_5\text{H}_{11}$ .....	114.12	0.837 <sup>0</sup>
35	aniline. ....	$\text{CH}_3\text{NHC}_6\text{H}_5$ .....	107.11	0.976 <sup>15</sup>
36	“ (K.) .....	$\text{CH}_3\text{NHC}_6\text{H}_5$ .....	107.11	0.9855 <sup>11</sup>
37	anthracene. ....	$\text{C}_6\text{H}_4:(\text{CH}_2)_2:\text{C}_6\text{H}_3.\text{CH}_3$ ..	192.10	.....
38	anthraquinone (2) ....	$\text{CH}_3.\text{C}_6\text{H}_3(\text{CO})_2\text{C}_6\text{H}_4$ .....	222.08	.....
39	arsenic acid. ....	$\text{CH}_3.\text{AsO}(\text{OH})_2$ .....	140.04	.....

\* Sol.  $\text{CS}_2$ , s. sol. bz.† V. sol.  $\text{CS}_2$ , chlo., and bz.

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.	s. soluble	soluble	.....	159°	.....
2	v. v. s. sol.	.....	.....	exp.	.....	needles/w. ..
3	insol.	.....	.....	.....	96°	.....
4	insol.	s. sol. hot	s. soluble *	243°	dist. dec.	v. sm. cryst..
5	insol.	mod.sol.hot	†	125-6°	> 306° dec.	rhomb. pris..
6	2.7 <sup>18</sup>	39	‡	202°	sub.	need./w.or al.
7	insol.	v. soluble	v. soluble	68-9°	219.5° C.	crystals. ....
8	insol.	soluble	soluble	.....	164.5°	.....
9	v. s. sol.	v. soluble	.....	166°	sub.	moncl./al....
10	soluble	∞	.....	.....	128.39°	.....
11	120 <sup>16</sup>	.....	.....	140-3°	.....	rectang. tab..
12	v. soluble	mod. sol.	s. soluble	119-20°	.....	needles. ....
13	insol.	1.8 <sup>70</sup>	0.5 <sup>85</sup>	.....	sub. 112-5°	tetragonal...
14	insol.	insol.	v. v. s. sol.	dec.	.....	vitreous. ....
15	5.45 c.c. <sup>0</sup>	52.2 c.c.	soluble	.....	-152.5 <sup>749</sup>	.....
16	soluble	.....	.....	129.0° C.	.....	leaflets/w....
17	s. soluble	.....	.....	162-3°	.....	.....
18	0.5 <sup>30</sup>	.....	.....	98.5°	200° +	moncl.tab./w.
19	s. soluble	v. soluble	v. soluble	106-7°	sub.	long need./w.
20	insol.	soluble	.....	101-2°	253° C. <sup>712</sup>	.....
21	33 <sup>22</sup>	∞	∞	-101.2°	57.5°	.....
22	.....	.....	.....	.....	186.8°	.....
23	.....	.....	.....	.....	80.3° C.	.....
24	mod. sol.	.....	.....	16°	162-3°	long prisms. .
25	.....	.....	.....	.....	45.5°	.....
26	28.5	∞	∞	.....	41-3°	.....
27	∞	∞	∞	-94.9°	66.78°	.....
28	∞	∞	∞	-95°	65.7-66.3	.....
29	sol. acetone	soluble	soluble	250-2°	sub. 200°	orange need..
30	12.5	.....	.....	.....	115-6°	.....
31	.....	.....	.....	.....	46°	.....
32	1150 c.c. <sup>12.5</sup>	sol.	.....	.....	-6-6.5°	.....
33	v. soluble	∞	soluble	.....	-6-5.5°	.....
34	.....	.....	.....	.....	151-2°	.....
35	.....	.....	.....	.....	193.5°	.....
36	s. soluble	soluble	∞	.....	193-4°	yellow. ....
37	sol. bz.	sol. CS <sub>2</sub> ...	.....	199-200°	.....	leaflets/al....
38	v. v. sol. bz.	v. s. sol.	soluble	177°	sub.	yel. needles. .
39	soluble	soluble	.....	.....	.....	large leaf./al.

‡ Very soluble chloroform carbon disulphide and ligroin.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
<b>Methyl</b>				
1	arsenic dichloride. ....	$\text{CH}_3\text{AsCl}_2$ .....	160.93	.....
2	arsenious oxide. ....	$\text{CH}_3\text{AsO}$ .....	106.03	.....
3	benzoate. ....	$\text{C}_6\text{H}_5\text{CO}_2\text{CH}_3$ .....	136.06	1.0876 <sup>18</sup>
4	benzyl ketone. ....	$\text{CH}_3\text{CO}\cdot\text{CH}_2\cdot\text{C}_6\text{H}_5$ .....	134.08	1.010 <sup>8</sup>
5	borate. ....	$(\text{CH}_3)_3\text{BO}_3$ .....	104.07	0.940 <sup>0</sup>
6	bromide. ....	$\text{CH}_3\text{Br}$ .....	94.99	1.732 <sup>0</sup>
7	butadiene (2) (2, 3). . .	$(\text{CH}_3)_2\text{C}:\text{C}:\text{CH}_2$ .....	68.06	0.6940 <sup>19</sup>
8	butenone (2) (1, 3). . .	$\text{CH}_3\text{CO}\cdot\text{C}(\text{CH}_3):\text{CH}_2$ .....	84.06	.....
9	butyl carbinol. ....	$\text{CH}_3\cdot\text{CH}(\text{OH})\text{C}_4\text{H}_9$ .....	102.12	0.8327 <sup>0</sup>
10	“ ether. ....	$\text{CH}_3\cdot\text{O}\cdot\text{C}_4\text{H}_9$ .....	88.10	0.7635 <sup>0</sup>
11	“ ketone. ....	$\text{CH}_3\cdot\text{CO}\cdot\text{C}_4\text{H}_9$ .....	100.10	0.830 <sup>0</sup>
12	butyrate. ....	$\text{C}_3\text{H}_7\text{CO}_2\text{CH}_3$ .....	102.08	0.9194 <sup>2</sup>
13	butyrone. ....	$\text{C}_8\text{H}_{16}\text{O}$ .....	128.13	0.827 <sup>18</sup>
14	caprate. ....	$\text{C}_9\text{H}_{19}\text{CO}_2\text{CH}_3$ .....	186.18	.....
15	caproate. ....	$\text{C}_5\text{H}_{11}\text{CO}_2\text{CH}_3$ .....	130.12	0.9039 <sup>0</sup>
16	caprylate. ....	$\text{C}_7\text{H}_{13}\text{CO}_2\text{CH}_3$ .....	158.15	0.8942 <sup>0</sup>
17	chloride. ....	$\text{CH}_3\text{Cl}$ .....	50.48	0.9197 <sup>18</sup>
18	cinnamate. ....	$\text{C}_6\text{H}_5\text{CH}:\text{CH}\cdot\text{CO}_2\text{CH}_3$ ..	162.08	1.0415 <sup>18</sup>
19	$\alpha$ -crotonate. ....	$\text{C}_3\text{H}_5\text{CO}_2\text{CH}_3$ .....	100.06	0.9806 <sup>4</sup>
20	cyanide. ....	$\text{CH}_3\text{CN}$ .....	41.03	0.7891 <sup>15</sup>
21	“ (K.) .....	$\text{CH}_3\text{CN}$ .....	41.03	0.784 <sup>15</sup>
22	diethyl carbinol. ....	$(\text{C}_2\text{H}_5)_2\text{C}(\text{OH})\cdot\text{CH}_3$ .....	102.12	0.8237 <sup>20</sup>
23	ether. ....	$(\text{CH}_3)_2\text{O}$ .....	46.05	1.617
24	ethyl acetic acid. ....	$\text{CH}_3(\text{C}_2\text{H}_5)\text{CH}\cdot\text{CO}_2\text{H}$ .....	102.08	0.938 <sup>18</sup>
25	“ acetone. ....	$\text{CH}_3\text{CO}\cdot\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$ ..	100.10	0.818 <sup>14</sup>
26	“ carbonate. ....	$\text{CH}_3\cdot\text{CO}_3\cdot\text{C}_2\text{H}_5$ .....	104.06	1.002 <sup>27</sup>
27	“ ether. ....	$\text{CH}_3\cdot\text{O}\cdot\text{C}_2\text{H}_5$ .....	60.06	0.7252 <sup>0</sup>
28	“ ketone. ....	$\text{CH}_3\cdot\text{CO}\cdot\text{C}_2\text{H}_5$ .....	72.06	0.8045 <sup>20</sup>
29	“ “ (K.) .....	$\text{CH}_3\cdot\text{CO}\cdot\text{C}_2\text{H}_5$ .....	72.06	0.8045 <sup>15</sup>
30	“ oxalate. ....	$\text{CH}_3\text{O}\cdot\text{C}_2\text{O}_2\cdot\text{OC}_2\text{H}_5$ .....	132.06	1.1556 <sup>0</sup>
31	“ succinate. ....	$\text{C}_4\text{H}_4\text{O}_4(\text{CH}_3)\text{C}_2\text{H}_5$ .....	160.10	1.0925 <sup>0</sup>
32	“ sulphide. ....	$\text{CH}_3\cdot\text{S}\cdot\text{C}_2\text{H}_5$ .....	76.12	0.837 <sup>20</sup>
33	fluoride. ....	$\text{CH}_3\text{F}$ .....	34.03	.....
34	formate. ....	$\text{HCO}_2\text{CH}_3$ .....	60.03	0.9860 <sup>14</sup>
35	furfurol (2, 5). ....	$\text{CH}_3\cdot\text{C}_4\text{H}_2\text{O}\cdot\text{CHO}$ .....	110.05	1.1087 <sup>18</sup>
36	glycolate (K.) .....	$\text{OHCH}_2\cdot\text{CO}_2\text{CH}_3$ .....	90.05	1.1677 <sup>18</sup>
37	hepten(2)ol(6) (2). . .	$\text{C}_8\text{H}_{16}\text{OH}$ .....	128.13	0.8545 <sup>20</sup>
38	hepten(2)one(6) (2). .	$\text{C}_7\text{H}_{14}\text{CO}$ .....	126.12	0.8602 <sup>20</sup>
39	heptyl ether. ....	$\text{CH}_3\cdot\text{O}\cdot\text{C}_7\text{H}_{15}$ .....	130.15	0.7953 <sup>0</sup>
40	hexyl ketone. ....	$\text{CH}_3\cdot\text{CO}\cdot\text{C}_6\text{H}_{13}$ .....	128.13	0.8185 <sup>19</sup>
41	hydrazine. ....	$\text{NH}_2\cdot\text{NHCH}_3$ .....	46.13	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					133°	
2				95°	dec.	warts/CS <sub>2</sub> ...
3	insol.	soluble	soluble		199.2° C.	
4				27°	215°	
5					65°	
6	s. soluble	soluble			4.5° <sup>758</sup>	
7					40.5–1.5°	
8					98–102°	oil.
9	v. s. sol.	soluble			136°	
10					70.3°	
11					127.37°	
12		∞	∞		102–3°	
13					180°	
14					223.5°	
15					149.6°	
16				–40°	192.9°	
17	400 c.c.	3500 c.c.			–23.73°	
18				36°	259.6°	
19					120.7°	
20	∞	∞	sol. bz.	–44.4° C.	81.54°	
21	∞	∞	∞	–41°	80–2°	colorless....
22		soluble		< –38°	123° C.	
23	3700 c.c.	∞	∞		–23.65°	
24				< –19°	177° C.	
25					118° C.	
26				–14.5°	109.2° C.	
27	soluble	∞	∞		10.8°	
28					78.6°	
29	soluble...	∞	∞		79.5–81.5°	colorless....
30					173.7° C.	
31				< –20°	208.2° C.	
32					66.9°	
33	166 c.c. <sup>15</sup>					
34	soluble	∞	∞		32.3°	
35	3.3	v. soluble			187° C.	oil....
36					151.2° C.	
37					174–6°	
38					173–4°	
39					149.8°	
40				–16°	172.92°	
41		∞	∞		87° <sup>745</sup>	

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Methyl hypochlorite . . . .	$\text{CH}_3\text{ClO}$ . . . . .	66.48	.....
2	indol (pr. 2) . . . . .	$\text{C}_8\text{H}_9\text{N}$ . . . . .	131.11	.....
3	iodide . . . . .	$\text{CH}_3\text{I}$ . . . . .	142.00	2.2852 <sup>15</sup>
4	" (K.) . . . . .	$\text{CH}_3\text{I}$ . . . . .	142.00	2.2744
5	isoamyl ether . . . . .	$\text{CH}_3\text{O.C}_5\text{H}_{11}$ . . . . .	102.12	0.6871 <sup>17</sup>
6	" ketone . . . . .	$\text{CH}_3\text{CO.C}_5\text{H}_{11}$ . . . . .	114.12	0.818 <sup>17</sup>
7	isobutyl ketone . . . . .	$\text{CH}_3\text{CO.C}_4\text{H}_9$ . . . . .	100.10	0.803 <sup>17</sup>
8	isobutyrate . . . . .	$(\text{CH}_3)_2\text{CH.CO}_2.\text{CH}_3$ . . . . .	102.08	0.9119 <sup>18</sup>
9	isocyanide . . . . .	$\text{CH}_3.\text{NC}$ . . . . .	41.07	0.7557 <sup>4</sup>
10	isohexyl ketone . . . . .	$\text{CH}_3\text{CO}(\text{CH}_2)_3\text{CH}(\text{CH}_2)_2$ . . . . .	128.13	0.817 <sup>19</sup>
11	isopropyl benzene (m.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CH}(\text{CH}_3)_2$ . . . . .	134.12	0.862 <sup>20</sup>
12	isopropyl ketone . . . . .	$\text{CH}_3\text{COCH}(\text{CH}_3)_2$ . . . . .	86.08	0.8045 <sup>19</sup>
13	isosuccinate . . . . .	$\text{C}_5\text{H}_7\text{O}_2.\text{CH}_3$ . . . . .	146.08	1.107 <sup>15</sup>
14	isovalerate . . . . .	$\text{C}_5\text{H}_9\text{O}_2.\text{CH}_3$ . . . . .	116.10	0.9001 <sup>18</sup>
15	lactate . . . . .	$\text{C}_3\text{H}_5\text{O}_3.\text{CH}_3$ . . . . . $[\text{CO}_2\text{H}$	104.06	1.118 <sup>0</sup>
16	malic acid ( $\beta$ ) . . . . .	$\text{CO}_2\text{H}.\text{CH}(\text{CH}_3).\text{CHOH}$ . . . . .	148.06	.....
17	malonate . . . . .	$\text{C}_3\text{H}_2\text{O}_4(\text{CH}_3)_2$ . . . . .	132.06	1.1603 <sup>15</sup>
18	mandelate . . . . .	$\text{C}_6\text{H}_5.\text{CH}(\text{OH}).\text{CO}_2.\text{CH}_3$ . . . . .	166.08	.....
19	mercaptan . . . . .	$\text{CH}_3\text{SH}$ . . . . .	48.09	< 1
20	mustard oil . . . . .	$\text{CH}_3\text{NCS}$ . . . . .	73.13	1.0691 <sup>17</sup>
21	naphthaline ( $\alpha$ ) . . . . .	$\text{C}_{10}\text{H}_7.\text{CH}_3$ . . . . .	142.08	1.0005 <sup>19</sup>
22	" ( $\beta$ ) . . . . .	$\text{C}_{10}\text{H}_7.\text{CH}_3$ . . . . .	142.08	.....
23	naphthyl amine ( $\alpha$ ) . . . . .	$\text{CH}_3\text{NHC}_{10}\text{H}_7$ . . . . .	157.13	.....
24	" ether ( $\alpha$ ) . . . . .	$\text{CH}_3.\text{O.C}_{10}\text{H}_7$ . . . . .	158.08	1.0964 <sup>17</sup>
25	" " ( $\beta$ ) . . . . .	$\text{CH}_3.\text{O.C}_{10}\text{H}_7$ . . . . .	158.08	.....
26	nitrate . . . . .	$\text{CH}_3\text{NO}_3$ . . . . .	77.03	1.2167 <sup>15</sup>
27	nitrite . . . . .	$\text{CH}_3\text{NO}_2$ . . . . .	61.03	0.991 <sup>15</sup>
28	nitrolic acid . . . . .	$\text{CH}(\text{NO}_2)\text{NOH}$ . . . . .	90.10	.....
29	nonyl ketone . . . . .	$\text{CH}_3\text{CO.C}_9\text{H}_{19}$ . . . . .	170.18	0.8268 <sup>20</sup>
30	octyl ether . . . . .	$\text{CH}_3.\text{O.C}_8\text{H}_{17}$ . . . . .	144.16	0.8014 <sup>0</sup>
31	" ketone . . . . .	$\text{CH}_3\text{CO.C}_8\text{H}_{17}$ . . . . .	156.16	0.825 <sup>20</sup>
32	oxalate . . . . .	$(\text{CH}_3)_2\text{C}_2\text{O}_4$ . . . . .	118.05	1.1479 <sup>54</sup>
33	palmitate . . . . .	$\text{C}_{16}\text{H}_{31}\text{O}_2.\text{CH}_3$ . . . . .	270.27	.....
34	pelargonate . . . . .	$\text{C}_9\text{H}_{17}\text{O}_2.\text{CH}_3$ . . . . .	172.16	0.892 <sup>0</sup>
35	pentamethylene . . . . .	$\text{CH}_3.\text{C}_5\text{H}_9$ . . . . .	84.10	0.750 <sup>17</sup>
36	phenyl carbinol (K.) . . . . .	$\text{CH}_3(\text{C}_6\text{H}_5)\text{CHOH}$ . . . . .	122.08	1.013
37	" hydrazine ( $\alpha\alpha$ ) . . . . .	$\text{C}_6\text{H}_5(\text{CH}_3)\text{N.NH}_2$ . . . . .	122.16	.....
38	phosphine . . . . .	$\text{CH}_3\text{PH}_2$ . . . . .	48.04	.....
39	piperidine . . . . .	$\text{C}_5\text{H}_{10}\text{N}.\text{CH}_3$ . . . . .	99.15	0.821 <sup>15</sup>
40	propargyl ether . . . . .	$\text{CH}_3.\text{O.C}_3\text{H}_3$ . . . . .	70.05	0.83 <sup>13</sup>
41	propionate . . . . .	$\text{C}_2\text{H}_5.\text{CO}_2.\text{CH}_3$ . . . . .	88.06	0.9372 <sup>18</sup>
42	propyl acetic acid . . . . .	$\text{CH}_3(\text{C}_3\text{H}_7)\text{CH.CO}_2\text{H}$ . . . . .	116.10	0.9414 <sup>0</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					12° <sup>736</sup>	
2		v. soluble	v. soluble	59–60°	272° <sup>750</sup>	need. or leaf..
3					42.3°	
4	0.8 c.c.	soluble	∞		42–3°	becomes red.
5					91°	
6					144° C.	
7	insol.	∞	∞; ∞ bz.		119° <sup>766</sup>	
8	s. soluble	∞	∞		92.3°	
9	10 <sup>16</sup>	2.9		–45°	59.6°	
10					170–1°	
11					175–6°	
12					95°	
13					179°	
14					116.7°	
15	soluble				144.8° C.	
16	∞	∞	∞	123°	dec.	pris./acet.eth
17					181.5° C.	
18				52°		small leaflets
19	insol.	∞	∞		5.8° <sup>752</sup>	yellow oil....
20				35°	119°	
21		v. soluble	v. soluble	–22°	240–2°	
22				32.5°	241–2°	leaflets/al....
23		v. soluble	v. soluble		293°	red oil.....
24		v. soluble	v. soluble	< –10°	269° C. <sup>753</sup>	
25	s. soluble	s. soluble	v. soluble	72°	274°	small leaf/et.
26	s. soluble	soluble	soluble		65° exp.	
27					–12°	
28	v. soluble		soluble	64°		needles.....
29				15°	230.6° C. <sup>766</sup>	
30					173°	
31				3.5°	211°	
32	s. soluble	soluble	sol.CH <sub>3</sub> OH	54.0°	163.3° C.	moncl. tab...
33				28°		crystals.....
34					213.5° C.	
35					71–2°	
36	insol.				202–4°	
37					227° <sup>746</sup>	
38	s. soluble	s. soluble	7000 c.c.		–14°	
39					107°	
40	s. soluble	∞	∞		61–2°	
41		∞	∞		79.9°	
42	0.57 <sup>17</sup>	soluble	soluble		193° <sup>748</sup>	

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Methyl propylacetylene .	$\text{CH}_3.\text{C}:\text{C}.\text{C}_3\text{H}_7$ .....	82.08	0.7377 <sup>18</sup>
2	“ “ ether.....	$\text{CH}_3.\text{O}.\text{C}_3\text{H}_7$ .....	74.08	0.7471 <sup>0</sup>
3	“ “ ketone . . .	$\text{CH}_3.\text{COC}_3\text{H}_7$ .....	86.08	0.812 <sup>18</sup>
4	pyrrol (1).....	$\text{C}_4\text{H}_4\text{N}.\text{CH}_3$ .....	81.10	0.9203 <sup>10</sup>
5	“ (2).....	$\text{C}_4\text{H}_4\text{N}.\text{CH}_3$ .....	81.10	.....
6	pyrryl ketone.....	$\text{C}_4\text{H}_4\text{N}.\text{CO}.\text{CH}_3$ .....	69.10	.....
7	pyruviate.....	$\text{C}_3\text{H}_3\text{O}_3.\text{CH}_3$ .....	102.05	1.154 <sup>0</sup>
8	quinoline (6).....	$\text{CH}_3.\text{C}_6\text{H}_3.\text{C}_3\text{H}_3\text{N}$ .....	143.11	1.0664 <sup>20</sup>
9	“ (py. 3) . . .	$\text{C}_{10}\text{H}_9\text{N}$ .....	143.11	1.0646 <sup>20</sup>
10	salicylate. . . . .	$\text{OHC}_6\text{H}_4\text{CO}_2\text{CH}_3$ .....	152.06	1.1819 <sup>10</sup>
11	“ (K.).....	$\text{OHC}_6\text{H}_4\text{CO}_2\text{CH}_3$ .....	152.06	1.182 <sup>11</sup>
12	selenide . . . . .	$(\text{CH}_3)_2\text{Se}$ .....	109.25	> 1
13	succinate . . . . .	$(\text{CH}_3\text{O}_2\text{C})_2\text{C}_2\text{H}_4$ .....	146.08	1.1261 <sup>16</sup>
14	stearate . . . . .	$\text{C}_{18}\text{H}_{35}\text{O}_2.\text{CH}_3$ .....	298.30	.....
15	sulphate . . . . .	$(\text{CH}_3)_2\text{SO}_4$ .....	126.11	1.3276 <sup>20</sup>
16	sulphide . . . . .	$(\text{CH}_3)_2\text{S}$ .....	62.11	0.845 <sup>21</sup>
17	sulphite . . . . .	$(\text{CH}_3)_2\text{SO}_3$ .....	110.11	1.0456
18	sulphocyanide.....	$\text{CH}_3.\text{S}.\text{CN}$ .....	73.13	1.0693 <sup>24</sup>
19	sulphone chloride.....	$\text{CH}_3\text{SO}_2\text{Cl}$ .....	114.54	1.51
20	sulphonic acid.....	$\text{CH}_3.\text{SO}_3\text{H}$ .....	96.09	.....
21	sulphuric acid.....	$\text{CH}_3\text{HSO}_4$ .....	112.09	.....
22	teluride . . . . .	$(\text{CH}_3)_2\text{Te}$ .....	157.64	.....
23	tetramethylene.....	$\text{CH}_3.\text{C}_4\text{H}_7$ .....	70.08	.....
24	trichlo-acetate.....	$\text{CCl}_3.\text{CO}_2\text{CH}_3$ .....	177.38	1.6733 <sup>25</sup>
25	trimethyl acetate. . . . .	$(\text{CH}_3)_3\text{C}.\text{CO}_2.\text{CH}_3$ .....	116.10	.....
26	trimethylene. . . . .	$\text{CH}_3.\text{C}_3\text{H}_5$ .....	56.06	0.6912 <sup>20</sup>
27	urea . . . . .	$\text{NH}_2\text{CONHCH}_3$ .....	74.13	.....
28	uric acid . . . . .	$\text{CH}_3.\text{C}_5\text{H}_3\text{N}_4\text{O}_3$ .....	182.21	.....
29	“ (γ).....	$\text{CH}_3.\text{C}_5\text{H}_3\text{N}_4\text{O}_3$ .....	182.21	.....
30	valeriate . . . . .	$\text{C}_4\text{H}_9.\text{CO}_2.\text{CH}_3$ .....	116.10	0.9097 <sup>0</sup>
31	Methylene acetate . . . . .	$(\text{CH}_3\text{CO}_2)_2\text{CH}_2$ .....	132.06	.....
32	bromide . . . . .	$\text{CH}_2\text{Br}_2$ .....	173.94	2.4930
33	chloride . . . . .	$\text{CH}_2\text{Cl}_2$ .....	84.92	1.3778 <sup>1</sup>
34	cyanide . . . . .	$\text{CH}_2(\text{CN})_2$ .....	66.10	.....
35	diethyl ether.....	$\text{CH}_2(\text{OC}_2\text{H}_5)_2$ .....	104.10	0.851 <sup>0</sup>
36	disulphonic acid. . . . .	$\text{CH}_2(\text{SO}_3\text{H})_2$ .....	176.15	.....
37	iodide . . . . .	$\text{CH}_2\text{I}_2$ .....	267.96	3.2856 <sup>15</sup>
38	Milk sugar.....	$\text{C}_{12}\text{H}_{22}\text{O}_{11} + \text{H}_2\text{O}$ .....	360.19	1.525 <sup>20</sup>
39	Monacetin . . . . .	$\text{C}_2\text{H}_3\text{O}_2.\text{C}_3\text{H}_5(\text{OH})_2$ .....	134.80	1.20
40	Mono-ethyl carbonate... .	$\text{C}_2\text{H}_5\text{HCO}_3$ .....	90.05	.....
41	“ fumarate . . . . .	$\text{CO}_2\text{H}.\text{C}_2\text{H}_2.\text{CO}_2\text{C}_2\text{H}_5$ .....	144.06	.....
42	methyl carbonate.....	$\text{CH}_3\text{HCO}_3$ .....	76.03	.....



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	.....	.....	83-4°	.....
2	soluble	∞	∞	.....	38.9°	.....
3	.....	.....	.....	.....	102.° C.	.....
4	insol.	∞	∞	.....	112-3° <sup>747</sup>	.....
5	.....	.....	.....	.....	147-8° <sup>750</sup>	.....
6	v. soluble	v. soluble	v. soluble	90°	220°	moncl. need..
7	.....	.....	.....	.....	134-7°	.....
8	.....	.....	.....	.....	257.4-8.6° <sup>745</sup>	.....
9	.....	.....	.....	10-14°	250° <sup>710</sup>	.....
10	s. soluble	soluble	soluble	.....	224° C.	[yellowish
11	.....	soluble	∞	8°	221-3°	colorless to
12	insol.	.....	.....	.....	58.2°	.....
13	.....	.....	.....	18.5°	195.3° C.	crystals....
14	.....	.....	.....	38°	.....	.....
15	.....	.....	.....	.....	188.3-8.6 C.	oil.....
16	.....	soluble	soluble	.....	37.5-8°	oil.....
17	.....	soluble	soluble	.....	121.5°	.....
18	.....	.....	.....	.....	133°	.....
19	insol.	soluble	soluble	.....	160°	.....
20	v. soluble	.....	.....	.....	dec. 130°	syrup.....
21	v. soluble	soluble	∞	< -30°	.....	oil.....
22	insol.	.....	.....	.....	82°	brass color...
23	.....	.....	.....	.....	39-42°	.....
24	decom.	decom.	soluble	34°	191-2°	.....
25	.....	.....	.....	.....	100-2°	.....
26	.....	.....	.....	.....	4-5°	.....
27	v. soluble	v. soluble	v. soluble	102°	dec.	prisms.....
28	0.4 <sup>100</sup>	v. v. s. sol.	sol. KOH	>360° dec.	.....	small pris./w.
29	1.25 <sup>100</sup>	.....	sol. KOH	no m.p.	dec. 370-80	fine leafl./w..
30	.....	.....	.....	.....	127.3°	.....
31	.....	.....	.....	.....	170°	.....
32	1.148 <sup>20</sup>	.....	.....	.....	98.5° <sup>756</sup>	.....
33	2.00 <sup>20</sup>	.....	.....	.....	41.6° C.	.....
34	8.33	40; 10 chlo.	20; 6.7 bz.	.....	109° <sup>20</sup>	.....
35	9.1 <sup>18</sup>	.....	.....	.....	89° C.	.....
36	deliq.	.....	.....	.....	.....	needles.....
37	.....	.....	.....	4°	180° dec.	leaflets.....
38	16.6	insol.	insol.	203.5° dec.	dec.	rhombic.....
39	s. soluble	.....	.....	.....	.....	.....
40	.....	.....	.....	-61-57°	.....	.....
41	s. soluble	v. soluble	v. soluble	70°	.....	thin tablets..
42	.....	.....	.....	-57-60°	.....	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Morphine. . . . .	$C_{17}H_{19}NO_3 + H_2O$ . . . . .	303.21	1.317-1.326
2	Mucic acid. . . . .	$(OH)_4C_4H_4(CO_2H)_2$ . . . . .	210.08	. . . . .
3	Myricyl alcohol. . . . .	$C_{30}H_{61}OH$ . . . . .	536.50	. . . . .
4	Myristic acid. . . . .	$C_{13}H_{27}CO_2H$ . . . . .	228.22	0.8622 <sup>54</sup>
5	aldehyde. . . . .	$C_{13}H_{27}CHO$ . . . . .	212.22	. . . . .
6	Naphthalene. . . . .	$C_{10}H_8$ . . . . .	128.06	1.1517 <sup>18</sup>
7	sulphonic acid ( $\alpha$ ). . . . .	$C_{10}H_7SO_3H + H_2O$ . . . . .	226.14	. . . . .
8	" " ( $\beta$ ). . . . .	$C_{10}H_7SO_3H$ . . . . .	208.12	. . . . .
9	Naphthalic acid (1) (8). . . . .	$C_{10}H_6(CO_2H)_2$ . . . . .	216.06	. . . . .
10	Naphthoic acid ( $\alpha$ ). . . . .	$C_{10}H_7CO_2H$ . . . . .	172.06	. . . . .
11	" ( $\beta$ ). . . . .	$C_{10}H_7CO_2H$ . . . . .	172.06	. . . . .
12	aldehyde ( $\alpha$ ). . . . .	$C_{10}H_7CHO$ . . . . .	156.06	. . . . .
13	" ( $\beta$ ). . . . .	$C_{10}H_7CHO$ . . . . .	156.06	. . . . .
14	Naphthol ( $\alpha$ ). . . . .	$C_{10}H_7OH$ . . . . .	144.06	1.224 <sup>4</sup>
15	" ( $\beta$ ). . . . .	$C_{10}H_7OH$ . . . . .	144.06	1.217 <sup>4</sup>
16	sulphonic acid ( $\alpha$ ). . . . .	$OHC_{10}H_6SO_3H$ . . . . .	224.12	. . . . .
17	" acid ( $\beta$ ). . . . .	$OHC_{10}H_6SO_3H$ . . . . .	224.12	. . . . .
18	Naphtho-phenazine ( $\alpha\beta$ ). . . . .	$C_{16}H_{10}N_2$ . . . . .	230.16	. . . . .
19	quinaldine ( $\alpha$ ). . . . .	$C_{13}H_8N.CH_3$ . . . . .	193.17	. . . . .
20	" ( $\beta$ ). . . . .	$C_{13}H_8N.CH_3$ . . . . .	193.17	. . . . .
21	quinoline ( $\alpha$ ). . . . .	$C_{13}H_9N$ . . . . .	179.11	. . . . .
22	" ( $\beta$ ). . . . .	$C_{13}H_9N$ . . . . .	179.11	. . . . .
23	quinone ( $\alpha$ ). . . . .	$C_{10}H_6O_2$ . . . . .	158.05	. . . . .
24	" ( $\beta$ ). . . . .	$C_{10}H_6O_2$ . . . . .	158.05	. . . . .
25	Naphthyl acetate ( $\alpha$ ). . . . .	$C_2H_3O_2.C_{10}H_7$ . . . . .	186.08	. . . . .
26	" " ( $\beta$ ). . . . .	$C_2H_3O_2.C_{10}H_7$ . . . . .	186.08	. . . . .
27	amine ( $\alpha$ ). . . . .	$C_{10}H_7NH_2$ . . . . .	143.11	. . . . .
28	" ( $\beta$ ). . . . .	$C_{10}H_7NH_2$ . . . . .	143.11	. . . . .
29	cyanide ( $\alpha$ ). . . . .	$C_{10}H_7CN$ . . . . .	153.10	. . . . .
30	" ( $\beta$ ). . . . .	$C_{10}H_7CN$ . . . . .	153.10	. . . . .
31	Naphthylene diamine (1,2). . . . .	$C_{10}H_6(NH_2)_2$ . . . . .	158.16	. . . . .
32	" " (1, 5). . . . .	$C_{10}H_6(NH_2)_2$ . . . . .	158.16	. . . . .
33	" " (1, 8). . . . .	$C_{10}H_6(NH_2)_2$ . . . . .	158.16	. . . . .
34	Naphthyl ether ( $\alpha$ ). . . . .	$(C_{10}H_7)_2O$ . . . . .	270.12	. . . . .
35	" ( $\beta$ ). . . . .	$(C_{10}H_7)_2O$ . . . . .	270.12	. . . . .
36	ketone ( $\alpha\beta$ ). . . . .	$C_{10}H_7.CO.C_{10}H_7$ . . . . .	282.12	. . . . .
37	" ( $\beta\beta$ ) (a.). . . . .	$C_{10}H_7.CO.C_{10}H_7$ . . . . .	282.12	. . . . .

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	0.1 <sup>20</sup> ; 0.25 <sup>100</sup>	5 <sup>20</sup> ; 7.5 <sup>7</sup>	insol.; .... 0.021 chlo.	.....	dec.	rhomb. pris. .
2	0.33	insol.	.....	206° dec.	.....	cryst. powder
3	.....	.....	.....	85°	.....	sm. need./et.
4	insol.	soluble	soluble	53.8°	250.5° <sup>100</sup>	leaflets. ....
5	.....	.....	.....	52.5°	168-9° <sup>22</sup>	.....
6	insol.	5.29 <sup>15</sup>	v. soluble	80.0°	218.21°	monoclinic ..
7	deliq.	soluble	s. soluble	85-90°	.....	crystalline...
8	not deliq.	.....	.....	.....	decom.	leafy crystals
9	v. v. s. sol.	s. soluble	s. soluble	no m.p.	.....	silky need./al
10	v. s. sol. hot	v. soluble	.....	160°	.....	need./dil. al.
11	s. sol. hot	v. soluble	v. soluble	184° C.	>300°	moncl. tab...
12	.....	.....	.....	.....	291.6° C.	thick liquid..
13	sol. hot	v. soluble	v. soluble	60.5-1°	.....	thin leaf./w..
14	insol.	v. soluble	v. soluble	94-96°	278-80°	monoclinic...
15	s. sol. hot	v. soluble	v. soluble	122°	285-6°	moncl. leaf...
16	mod. sol.	.....	.....	>250°	.....	rhomb.tab./w
17	v. soluble	v. soluble	.....	122°	.....	small leaflets
18	.....	v. s. sol.	v. s. sol.	142.5°	>360°	lemon yel.
19	.....	.....	.....	.....	>300°	....[pris./bz.
20	s. soluble	v. soluble	v. soluble	82°	>300°	large need. /dil. al.
21	v. s. sol.	v. soluble	v. soluble	52°	338° <sup>719</sup>	moncl./et....
22	v. s. sol.	v. soluble	v. soluble	93.5°	349.5-50° <sup>721</sup>	glit. scales/w.
23	s. soluble	soluble	v. soluble	125°	not in steam	yel. need./lig.
24	soluble	soluble	.....	115-20° de	not in steam	red. need./et.
25	mod.sol. hot	soluble	v. soluble	49°	.....	nd.or tab./al.
26	insol.	v. soluble	v. soluble	70°	.....	small needles
27	0.167	v. soluble	v. soluble	50°	300°	flat needles..
28	soluble	.....	.....	111-2°	294°	leaflets/w....
29	.....	soluble	sol. lig.	37.5°	297-8° C.	needles.....
30	.....	v. soluble	sol. lig.	66.5°	304-5° C.	leaflets/lig. .
31	mod. sol.hot	v. soluble	v. soluble	95-6°	.....	rh'b. leaf./w.
32	v. s. sol.	soluble	soluble	189.5°	.....	prisms/et....
33	s. soluble	∞	∞	66.5°	sub.	cryst./dil. al.
34	insol.	s. soluble	v. sol.; v. sol. bz.	110°	>360°	leaflets. ....
35	v. sol. bz.	s. soluble	v. soluble	105°	>360°	.....
36	v. sol. bz.	1.4 <sup>14</sup>	v. soluble	135°	dist.	needles/al....
37	.....	4	.....	125.5°	.....	needles/et...;

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Naphthyl ketone ( $\beta\beta$ ) (b.)	$C_{10}H_7.CO.C_{10}H_7$ .....	282.12	.....
2	Narciene.....	$C_{23}H_{27}NO_8$ .....	463.32	.....
3	Narcotine.....	$C_{22}H_{23}NO_7$ .....	413.23	.....
4	Neohexane.....	$(CH_3)_3CC_2H_5$ .....	86.12	0.649 <sup>8</sup>
5	Neopentane.....	$(CH_3)_4C$ .....	72.10	.....
6	Nicotine.....	$C_{10}H_{14}N_2$ .....	162.20	1.0110 <sup>9</sup>
7	Nicotinic acid.....	$C_5H_4NCO_2H$ .....	123.08	.....
8	Nitraniline (o.).....	$NO_2.C_6H_4.NH_2$ .....	138.13	.....
9	“ (m.).....	$NO_2.C_6H_4.NH_2$ .....	138.13	1.430
10	“ (p.).....	$NO_2.C_6H_4.NH_2$ .....	138.13	1.424
11	Nitro-acetic acid.....	$CH_2NO_2.CO_2H$ .....	105.07	.....
12	alizarine ( $\alpha$ ).....	$C_{14}H_7O_4.NO_2$ .....	285.10	.....
13	“ ( $\beta$ ).....	$C_{14}H_7O_4.NO_2$ .....	285.10	.....
14	anthraquinone ( $\alpha$ )....	$C_{14}H_7O_2.NO_2$ .....	253.10	.....
15	“ ( $\beta$ )....	$C_{14}H_7O_2.NO_2$ .....	253.10	.....
16	benzaldehyde (o.)....	$NO_2.C_6H_4.CHO$ .....	151.08	.....
17	“ (m.) ..	$NO_2.C_6H_4.CHO$ .....	151.08	.....
18	“ (p.) ..	$NO_2.C_6H_4.CHO$ .....	151.08	.....
19	benzamide (o.).....	$NO_2.C_6H_4.CONH_2$ .....	166.13	.....
20	“ (m.).....	$NO_2.C_6H_4.CONH_2$ .....	166.13	.....
21	“ (p.).....	$NO_2.C_6H_4.CONH_2$ .....	166.13	.....
22	benzene.....	$C_6H_5NO_2$ .....	123.08	1.1866 <sup>14</sup>
23	“ (K.).....	$C_6H_5NO_2$ .....	123.08	1.2045 <sup>14</sup>
24	benzoic acid (o.).....	$NO_2.C_6H_4.CO_2H$ .....	167.08	1.575 <sup>4</sup>
25	“ “ (m.).....	$NO_2.C_6H_4.CO_2H$ .....	167.08	1.494 <sup>4</sup>
26	“ “ (p.).....	$NO_2.C_6H_4.CO_2H$ .....	167.08	.....
27	benzonitrile (o.).....	$NO_2.C_6H_4.CN$ .....	148.11	.....
28	“ (m.).....	$NO_2.C_6H_4.CN$ .....	148.11	.....
29	“ (p.).....	$NO_2.C_6H_4.CN$ .....	148.11	.....
30	benzyl chloride (o.)....	$NO_2.C_6H_4.CH_2Cl$ .....	171.54	.....
31	“ “ (m.)..	$NO_2.C_6H_4.CH_2Cl$ .....	171.54	.....
32	“ “ (p.) ..	$NO_2.C_6H_4.CH_2Cl$ .....	171.54	.....
33	bromoform.....	$NO_2.CBr_3$ .....	297.92	2.811 <sup>12</sup>
34	carbon.....	$C(NO_2)_4$ .....	196.10	.....
35	cinnamic acid (o.)....	$NO_2.C_6H_4.C_2H_2CO_2H$ .....	193.10	.....
36	“ “ (m.)...	$NO_2.C_6H_4.C_2H_2CO_2H$ .....	193.10	.....
37	“ “ (p.)...	$NO_2.C_6H_4.C_2H_2CO_2H$ .....	193.10	.....
38	cumene o. + p.....	$NO_2.C_6H_4.CH(CH_3)_2$ .....	165.13	.....
39	diphenyl (o.).....	$C_6H_5.C_6H_4.NO_2$ .....	199.11	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	0.08	v. s. sol.	164-4.5°	.....	silky leaflets.
2	0.08 <sup>13</sup>	v. soluble	insol.	170°	.....	long pris./w..
3	insol.	1 <sup>85</sup> % <sup>20</sup> ; 5 <sup>78</sup>	0.77; 2.1 <sup>38</sup>	176°	dec.	rhomb. pris..
4	.....	soluble	soluble	.....	49.7°	.....
5	.....	.....	.....	-20°	9.5°	.....
6	∞	∞	∞	.....	246.7° <sup>745</sup>	.....
7	s. soluble	mod. sol.	v. v. s. sol.	228-9°	sub.	fine needles..
8	v. s. sol.	v. soluble	v. soluble	71.5°	.....	orange need..
9	0.114 <sup>20</sup>	11.06	7.89	114°	285°	yel. rhb. need.
10	0.077 <sup>20</sup>	5.84	6.10	147°	.....	yel. moncl./w
11	dec.	v. v. sol.	v. v. sol.	69°	.....	.....
12	s. soluble	soluble	sol. KOH	289°	sub.	yel. need./al.
13	s. soluble	v. soluble	sol. chlo. and bz.	244° dec.	sub. dec.	orange need. /bz.
14	insol.	v. s. sol.	v. v. s. sol.	230°	sub.	fine need./ace
15	sol. chlo. and bz.	s. soluble	s. soluble	220°	sub.	glit. prisms..
16	s. soluble	v. soluble	v. soluble	43.5-4.5°	.....	yel. need./w.
17	s. soluble	v. soluble	v. soluble	58°	.....	needles .....
18	s. soluble	v. soluble	s. soluble	106°	.....	prisms/w....
19	mod.sol. hot	.....	.....	176.6° C.	.....	short needles
20	sol. hot	.....	.....	142.7° C.	.....	needles.....
21	s. sol. hot	.....	.....	201.4° C.	.....	needles.....
22	insol.	soluble	soluble	3°	209.4° <sup>745</sup>	.....
23	s. soluble	soluble	. ∞	5-6°	209-10°	bright yellow
24	0.611 <sup>16</sup>	28 <sup>10</sup>	21.6 <sup>11</sup>	147°	.....	triclin.nd./w.
25	0.235 <sup>16</sup>	33 <sup>10</sup>	25.1 <sup>11</sup>	140-1°	.....	moncl. tab./w
26	0.04 <sup>20</sup>	0.09 <sup>10</sup>	2.2 <sup>11</sup>	238°	.....	leaflets/w....
27	sol. hot	v. soluble	v. soluble	109°	.....	silky needles.
28	s. soluble	v. soluble	v. soluble	117-8°	.....	needles.....
29	s. soluble	v. sol. chlo.	.....	147°	.....	leaflets/al....
30	.....	soluble.....	.....	48-9°	.....	crystals/lig...
31	.....	soluble.....	.....	45-7°	173-83°/ <sup>30</sup>	yel. need./lig.
32	.....	soluble.....	.....	71°	.....	leaf. or need.
33	.....	.....	.....	10.25°	127° <sup>118</sup>	prisms.....
34	insol.	soluble	soluble	13°	126°	white cryst..
35	insol.	s. soluble	.....	237-40°	.....	.....
36	.....	.....	.....	196-7°	.....	yellow need..
37	v. s. sol. hot	s. soluble	insol. lig.	285-6°	.....	prisms/al....
38	.....	.....	.....	-35°	dec.	.....
39	.....	.....	.....	37°	abt. 320°	tric. tab./al..

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Nitro-diphenyl (p.) . . . . .	$C_6H_5.C_6H_4.NO_2$ . . . . .	199.11	
2	-dimethyl aniline (m.)	$NO_2.C_6H_4N(CH_3)_2$ . . . . .	166.16	
3	" " (p.)	$NO_2.C_6H_4N(CH_3)_2$ . . . . .	166.16	
4	-ethane . . . . .	$CH_3.CH_2.NO_2$ . . . . .	75.08	1.0561 <sup>15</sup>
5	-form . . . . .	$CH(NO_2)_3$ . . . . .	151.13	
6	-isatine . . . . .	$NO_2.C_8H_4.NO_2$ . . . . .	192.11	
7	-methane . . . . .	$CH_3.NO_2$ . . . . .	61.07	1.1441 <sup>15</sup>
8	-naphthaline (α) . . . . .	$C_{10}H_7.NO_2$ . . . . .	173.10	1.331 <sup>4</sup>
9	" (β) . . . . .	$C_{10}H_7.NO_2$ . . . . .	173.10	
10	-naphthol(2) (α) . . . . .	$NO_2.C_{10}H_6.OH$ . . . . .	189.10	
11	" (4) . . . . .	$NO_2.C_{10}H_6.OH$ . . . . .	189.10	
12	" (1) (β) . . . . .	$NO_2.C_{10}H_6.OH$ . . . . .	189.10	
13	-phenol (o.) . . . . .	$NO_2.C_6H_4.OH$ . . . . .	139.08	1.447
14	" (m.) . . . . .	$NO_2.C_6H_4.OH$ . . . . .	139.08	
15	" (p.) . . . . .	$NO_2.C_6H_4.OH$ . . . . .	139.08	1.468
16	-isophthalic acid (5) . . . . .	$NO_2.C_6H_3(CO_2H)_2 + 1\frac{1}{2}H_2O$	236.11	
17	-phthalic acid (3) . . . . .	$NO_2.C_6H_3(CO_2H)_2$ . . . . .	211.08	
18	" " (4) . . . . .	$NO_2.C_6H_3 + H_2O$ . . . . .	229.10	
19	-propane . . . . .	$CH_3.CH_2.CH_2.NO_2$ . . . . .	89.10	1.0108 <sup>15</sup>
20	-quinoline (5) . . . . .	$C_9H_6N.NO_2$ . . . . .	174.13	
21	" (6) . . . . .	$C_9H_6N.NO_2 + XH_2O$ . . . . .	174.13	
22	" (7) . . . . .	$C_9H_6N.NO_2$ . . . . .	174.13	
23	" (8) . . . . .	$C_9H_6N.NO_2 + XH_2O$ . . . . .	174.13	
24	-salicylic acid (3) . . . . .	$NO_2.C_6H_3(OH)CO_2H$ + $H_2O$	201.10	
25	" " (5) . . . . .	$NO_2.C_6H_3(OH)CO_2H$ . . . . .	183.08	
26	" " (6) . . . . .	$NO_2.C_6H_3(OH)CO_2H$ . . . . .	183.08	
27	Nitroso-aniline (p.) . . . . .	$NO.C_6H_4.NH_2$ . . . . .	122.13	
28	-benzene . . . . .	$C_6H_5.NO$ . . . . .	107.08	
29	-dimethyl aniline (p.)	$NO.C_6H_4N(CH_3)_2$ . . . . .	150.16	
30	-diphenyl amine . . . . .	$NO.N(C_6H_5)_2$ . . . . .	198.16	
31	-naphthol (2) (α) . . . . .	$NO.C_{10}H_6.OH$ . . . . .	173.10	
32	" (4) . . . . .	$NO.C_{10}H_6.OH$ . . . . .	173.10	
33	" (1) (β) . . . . .	$NO.C_{10}H_6.OH$ . . . . .	173.10	
34	-phenol (p.) . . . . .	$NO.C_6H_4.OH$ . . . . .	123.08	
35	Nitro-styrene (o.) . . . . .	$NO_2.C_6H_4.C_2H_3$ . . . . .	149.10	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.	mod. sol.	v. sol. chlo.	113°	340° C.	long need./al.
2	insol.	soluble	soluble	60-1°	280-5°	red mono....
3	insol.	soluble	.....	162-3°	.....	long yel. need
4	insol.	.....	.....	.....	114-4.8°	.....
5	mod. sol.	.....	.....	15°	explodes	white cryst..
6	s. soluble	v. soluble	sol. KOH	226-30°	.....	rosettes/al...
7	s. soluble	.....	sol. KOH	.....	101-1.5° <sup>765</sup>	oil.....
8	.....	.....	2.81 <sup>15</sup>	61°	304°	yellow need.
9	.....	v. soluble	v. soluble	79°	.....	yellow need. /NH <sub>3</sub>
10	v. s. sol.	s. soluble	.....	128°	.....	green yel. leaf
11	sol. hot	v. soluble	sol. acet.	164°	.....	yel. need./w.
12	.....	v. soluble	.....	103°	.....	yel. need. or prisms
13	s. soluble	v. soluble	v. soluble	44.27°	214°	sulphur yel. prisms
14	s. soluble	v. soluble	v. soluble	96°	194° <sup>70</sup>	thick yel.crys. /et.
15	v. s. sol.	v. soluble	.....	115°	.....	moncl. prisms
16	0.14 <sup>15</sup>	v. v. sol.	.....	248-9°	.....	thin leaflets.
17	v. s. sol.	v. soluble	v. soluble	219-20°	.....	yel.moncl. pr.
18	v. soluble	v. soluble	v. soluble	161°	.....	small needles
19	insol.	.....	.....	130.5-1.5	.....	oil.....
20	s. sol. hot	.....	.....	72°	sub.	v. fine ne./w.
21	sol. hot	v. s. sol.	s. sol. lig.	149-50°	sub.	v. fine needles
22	.....	v. s. sol.	v. soluble	132-3°	.....	silky need. /dil. al.
23	s. soluble	mod. sol.	mod. sol.	88-9°	.....	moncl. need..
24	0.14 <sup>15</sup>	v. soluble	v. soluble	anhy. 144°	.....	long needles .
25	0.176 <sup>22</sup>	v. soluble	.....	228°	.....	long needles .
26	sol. acetone	mod. sol.	v. s. sol.	195°	.....	yellow need..
27	.....	.....	sol. bz.	173-4°	.....	blue need./bz
28	.....	mod. sol.	.....	67.5-8°	.....	monoclinic...
29	insol.	soluble	soluble	85°	.....	green leaflets
30	v. sol. bz.	s. soluble	.....	66.5°	.....	yel. quad. tab
31	v. v. s. sol.	v. soluble	s. soluble	152°	.....	yel. need./bz
32	.....	v. soluble	v. soluble	193-4° dec.	.....	needles.....
33	insol.	2.4 <sup>13</sup>	v. soluble	.....	.....	leaf. or prisms
34	mod. sol.	v. soluble	v. soluble	126°	.....	green rhomb.
35	sol. H <sub>2</sub> SO <sub>4</sub>	.....	.....	12-3.5°	.....	oil.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Nitro-styrene (m.)	$\text{NO}_2 \cdot \text{C}_6\text{H}_4 \cdot \text{C}_2\text{H}_3$	149.10	
2	" (p.)	$\text{NO}_2 \cdot \text{C}_6\text{H}_4 \cdot \text{C}_2\text{H}_3$	149.10	
3	-thiophene	$\text{NO}_2 \cdot \text{C}_4\text{H}_3\text{S}$	129.13	
4	-toluene (o.)	$\text{NO}_2 \cdot \text{C}_6\text{H}_4 \cdot \text{CH}_3$	137.10	1.168 <sup>15</sup>
5	" (K.)	$\text{NO}_2 \cdot \text{C}_6\text{H}_4 \cdot \text{CH}_3$	137.10	1.162 <sup>16</sup>
6	" (m.)	$\text{NO}_2 \cdot \text{C}_6\text{H}_4 \cdot \text{CH}_3$	137.10	1.168 <sup>23</sup>
7	-toluene (p.)	$\text{NO}_2 \cdot \text{C}_6\text{H}_4 \cdot \text{CH}_3$	137.10	1.123 liq.
8	-o-toluidine (3)	$\text{C}_6\text{H}_3(\text{CH}_3)(\text{NH}_2)\text{NO}_2$	152.14	
9	" (4)	1: 2: 4 = $\text{CH}_3$ : $\text{NH}_2$ : $\text{NO}_2$	152.14	
10	" (5)	1: 2: 5 = $\text{CH}_3$ : $\text{NH}_2$ : $\text{NO}_2$	152.14	
11	" (6)	1: 2: 6 = $\text{CH}_3$ : $\text{NH}_2$ : $\text{NO}_2$	152.14	
12	-m- (2)	1: 3: 2 = $\text{CH}_3$ : $\text{NH}_2$ : $\text{NO}_2$	152.14	
13	" (4)	1: 3: 4 = $\text{CH}_3$ : $\text{NH}_2$ : $\text{NO}_2$	152.14	
14	" (5)	1: 3: 5 = $\text{CH}_3$ : $\text{NH}_2$ : $\text{NO}_2$	152.14	
15	" (6)	1: 3: 6 = $\text{CH}_3$ : $\text{NH}_2$ : $\text{NO}_2$	152.14	
16	-p- (2)	1: 4: 2 = $\text{CH}_3$ : $\text{NH}_2$ : $\text{NO}_2$	152.14	
17	" (3)	1: 4: 3 = $\text{CH}_3$ : $\text{NH}_2$ : $\text{NO}_2$	152.14	
18	-urea	$\text{NH}_2 \cdot \text{CO} \cdot \text{NHNO}_2$	105.15	
19	Nonane n.	$\text{CH}_3(\text{CH}_2)_7\text{CH}_3$	128.16	0.7228 <sup>17</sup>
20	"	$(\text{CH}_3)_2\text{CH}(\text{CH}_2)_3\text{CH}(\text{CH}_3)_2$	128.16	0.7247 <sup>0</sup>
21	Nondecane n.	$\text{CH}_3(\text{CH}_2)_{17}\text{CH}_3$	268.32	0.7774 <sup>18</sup>
22	Nondecylic acid	$\text{C}_{18}\text{H}_{37} \cdot \text{CO}_2\text{H}$	298.30	
23	Nonyl alcohol	$\text{CH}_3(\text{CH}_2)_7\text{CH}_2\text{OH}$	144.16	0.8346 <sup>19</sup>
24	Nonylene	$\text{CH}(\text{CH}_2)_6\text{CH} : \text{CH}_2$	126.15	0.7433 <sup>19</sup>
25	Nonylic acid	$\text{C}_8\text{H}_{17} \cdot \text{CO}_2\text{H}$	158.15	0.6890 <sup>17</sup>
26	Octadecane (n.)	$\text{CH}_3(\text{CH}_2)_{16}\text{CH}_3$	254.30	0.7768 <sup>20</sup>
27	Octadecine (1)	$\text{HC} : \text{C}(\text{CH}_2)_5\text{CH}_3$	250.27	0.7983 <sup>20</sup>
28	" (2)	$\text{CH}_3 \cdot \text{C} : (\text{CH}_2)_4\text{CH}_3$	250.27	0.802 <sup>19</sup>
29	Octadecyl alcohol	$\text{CH}_3(\text{CH}_2)_{16}\text{CH}_2\text{OH}$	270.32	0.8124 <sup>19</sup>
30	Octadecylene (n.)	$\text{CH}_3(\text{CH}_2)_{15}\text{CH} : \text{CH}_2$	252.29	0.7910 <sup>19</sup>
31	Octane (n.)	$\text{CH}_3(\text{CH}_2)_6\text{CH}_3$	114.15	0.7188 <sup>1</sup>
32	"	$[(\text{CH}_3)_2\text{CH} \cdot \text{CH}_2]_2$	114.15	0.7111 <sup>1</sup>
33	Octine (1)	$\text{CH}_3(\text{CH}_2)_5\text{C} : \text{CH}$	110.12	0.7701 <sup>0</sup>
34	" (2)	$\text{CH}_3(\text{CH}_2)_4\text{C} : \text{C} \cdot \text{CH}_3$	110.12	
35	Octochlor-propane	$\text{CCl}_3 \cdot \text{CCl}_2 \cdot \text{CCl}_3$	319.60	
36	Octone	$\text{C}_8\text{H}_{12}$	108.10	
37	Octyl alcohol (n.)	$\text{CH}_3(\text{CH}_2)_6\text{CH}_2\text{OH}$	130.15	0.8375 <sup>0</sup>
38	amine	$\text{CH}_3(\text{CH}_2)_7\text{NH}_2$	129.20	
39	" (sec.)	$\text{CH}_3(\text{CH}_2)_5\text{CH}(\text{NH}_2)\text{CH}_3$	129.20	0.786
40	chloride (n.)	$\text{CH}_3(\text{CH}_2)_6\text{CH}_2\text{Cl}$	148.59	0.8786 <sup>15</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	sol. chlo.	sol. abs.	soluble	-5°	.....	yellow oil....
2	v. sol. bz.	v. sol. hot	v. soluble	29°	vol.in steam	prisms/lig... .
3	.....	.....	.....	44°	224-5°	monoclinic... .
4	insol.	soluble	.....	-10.5°	218°	.....
5	insol.	soluble	∞	-10.5°	219-21°	bright yellow
6	.....	soluble	.....	16°	230-1°	.....
7	insol.	soluble	.....	54°	238°	rhombic....
8	sol. chlo. and bz.	v. soluble	v. soluble	97°	.....	orange prisms /al.
9	.....	soluble	soluble	107-9°	.....	moncl. prisms
10	v. s. sol.	v. soluble	.....	127-8°	.....	lem. y. ne./w.
11	s. soluble	v. soluble	v. soluble	91.5°	.....	long yel. need
12	s. soluble	v. soluble	sol. acids	53°	.....	yel. needles..
13	soluble	v. soluble	v. soluble	109°	.....	yel. leaf./w..
14	v. s. sol.	v. soluble	v. soluble	98-98.4°	.....	orange need..
15	sol. acid	.....	.....	138°	.....	long yel. need
16	soluble	s. sol. CS <sub>2</sub>	.....	77.5°	.....	yel. monocl..
17	v. s. sol.	v. soluble	.....	116-7°	.....	red. prisms..
18	s. soluble	v. soluble	v. soluble	dec.	.....	cryst. pow./al
19	.....	.....	.....	< -51°	149.7° C.	.....
20	.....	.....	.....	.....	132°	.....
21	.....	.....	.....	32°	330° C.	.....
22	.....	.....	.....	66.5°	297-9° <sup>100</sup>	glit. leaf./al .
23	soluble	∞	∞	-5°	213.5°	.....
24	.....	.....	.....	.....	139.5° C.	.....
25	soluble	soluble	soluble	12-2.5°	253-4°	leaflets. ....
26	.....	.....	.....	28°	317° C.	.....
27	.....	.....	.....	26°	180° <sup>15</sup>	.....
28	.....	.....	.....	30°	184° <sup>15</sup>	.....
29	.....	.....	.....	59°	210.5° <sup>15</sup>	glit. leaf./al..
30	.....	.....	.....	18°	179° <sup>15</sup>	crystalline...
31	.....	.....	.....	.....	125.46° C.	.....
32	.....	.....	.....	.....	108.53° C.	.....
33	.....	.....	.....	.....	131-2°	.....
34	.....	.....	.....	.....	133-4°	.....
35	.....	soluble	soluble	160°	268-9° <sup>734</sup>	leaflets. ....
36	.....	.....	.....	.....	133-5°	.....
37	soluble	∞	∞	.....	195.5°	.....
38	.....	.....	.....	.....	185-7°	.....
39	.....	.....	.....	.....	162.5°	.....
40	.....	.....	.....	.....	182.5-3.5C.	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Octyl chloride (sec.) . . . .	$\text{CH}_3(\text{CH}_2)_5\text{CHCl.CH}_3$ . . . .	148.59	0.8707 <sup>15</sup>
2	Octylene (n.) . . . . .	$\text{CH}_3(\text{CH}_2)_5\text{CH:CH}_2$ . . . . .	112.13	0.7217 <sup>17</sup>
3	Octyl ether (n.) . . . . .	$(\text{C}_8\text{H}_{17})_2\text{O}$ . . . . .	242.27	0.8203 <sup>0</sup>
4	formate . . . . .	$\text{HCO}_2.\text{C}_8\text{H}_{17}$ . . . . .	158.15	0.8929 <sup>0</sup>
5	Oenanthol (K.) . . . . .	$\text{CH}_3(\text{CH}_2)_5\text{CHO}$ . . . . .	114.12	0.8025 <sup>16</sup>
6	Oenanthylic acid . . . . .	$\text{CH}_3(\text{CH}_2)_5\text{CO}_2\text{H}$ . . . . .	130.12	0.9183 <sup>20</sup>
7	Oleic acid . . . . .	$\text{CH}_3(\text{CH}_2)_{13}\text{CH:CH.}$ $\text{CH}_2.\text{CO}_2\text{H}$	282.28	0.8908 <sup>12</sup>
8	Oleïne . . . . .	$(\text{C}_{18}\text{H}_{33}\text{O}_2)_3\text{C}_3\text{H}_5$ . . . . .	884.83	.....
9	Opianic acid . . . . .	$(\text{CH}_3\text{O})_2\text{C}_6\text{H}_2(\text{CHO})\text{CO}_2\text{H}$	210.08	.....
10	Orceïn . . . . .	$\text{C}_{28}\text{H}_{24}\text{N}_2\text{O}_7$ . . . . .	500.27	.....
11	Orcin 1: 3: 5 . . . . .	$\text{CH}_3.\text{C}_6\text{H}_8(\text{OH})_2 + \text{H}_2\text{O}$ . . .	124.06	1.2895 <sup>4</sup>
12	Oxalacetic acid . . . . .	$\text{CO}_2\text{H.CO.CH}_2\text{CO}_2\text{H}$ . . . . .	132.03	.....
13	Oxalhydrazid . . . . .	$\text{C}_2\text{O}_2(\text{NH.NH}_2)_2$ . . . . .	118.21	.....
14	Oxalic acid . . . . .	$\text{CO}_2\text{H.CO}_2\text{H} + 2\text{H}_2\text{O}$ . . . . .	126.04	1.653 <sup>18</sup>
15	Oxaluric acid . . . . .	$\text{NH}_2.\text{CO.NH.CO.CO}_2\text{H}$ . . . . .	132.11	.....
16	Oxalyl chloride . . . . .	$\text{ClOC.COCl}$ . . . . .	126.90	.....
17	Oxamic acid . . . . .	$\text{CO}_2\text{H.CONH}_2$ . . . . .	89.04	.....
18	Oxamide . . . . .	$\text{CONH}_2.\text{CONH}_2$ . . . . .	88.11	1.667
19	Oxanilic acid . . . . .	$\text{CO}_2\text{H.CONHC}_6\text{H}_5 + \text{H}_2\text{O}$ . . . . .	183.11	.....
20	Oxanilid . . . . .	$(\text{CONHC}_6\text{H}_5)_2$ . . . . .	240.18	.....
21	Oximide . . . . .	$<(\text{CO})_2>\text{NH}$ . . . . .	71.05	.....
22	Oxindol . . . . .	$\text{C}_8\text{H}_7\text{NO}$ . . . . .	133.10	.....
23	Oxyglutanic acid (a) . . . .	$\text{CO}_2\text{H.CHOH}(\text{CH}_2)_2\text{CO}_2\text{H}$	148.06	.....
24	Oxythymol 4: 1: 2: 5 . . . .	$(\text{CH}_3)_2\text{CH}(\text{CH}_3)\text{C}_6\text{H}_2$	166.12	.....
25	Palmitic acid . . . . .	$\text{CH}_3(\text{CH}_2)_{14}\text{CO}_2\text{H} . [(\text{OH})_2$	256.26	0.8465 <sup>7.6</sup> / <sub>4</sub>
26	aldehyde . . . . .	$\text{CH}_3(\text{CH}_2)_{14}\text{CHO}$ . . . . .	240.26	.....
27	anhydride . . . . .	$(\text{C}_{16}\text{H}_{31}\text{O})_2\text{O}$ . . . . .	494.50	.....
28	Palmitin . . . . .	$(\text{C}_{16}\text{H}_{31}\text{O}_2)_3\text{C}_3\text{H}_5$ . . . . .	806.78	.....
29	Palmitolic acid . . . . .	$\text{C}_{15}\text{H}_{27}.\text{CO}_2\text{H}$ . . . . .	252.23	.....
30	Palmitone . . . . .	$(\text{C}_{15}\text{H}_{31})_2\text{CO}$ . . . . .	450.50	0.7997 <sup>13</sup>
31	Palmito-nitrile . . . . .	$\text{C}_{15}\text{H}_{31}\text{CN}$ . . . . .	237.29	0.8224 <sup>14</sup>
32	Papaverine . . . . .	$\text{C}_{20}\text{H}_{21}\text{NO}_4$ . . . . .	351.21	1.308–1.337
33	Papaverinic acid . . . . .	$\text{C}_{16}\text{H}_{13}\text{NO}_7$ . . . . .	331.05	.....
34	Parabamic acid . . . . .	$\text{CO} < (\text{NHCO})_2 >$ . . . . .	114.10	.....
35	Paracyanogen . . . . .	$(\text{CN})_6$ . . . . .	156.24	.....
36	Paraformaldehyde . . . . .	$(\text{CH}_2\text{O})_x$ . . . . .	60.03	.....
37	Paraldehyde . . . . .	$(\text{C}_2\text{H}_4\text{O})_3$ . . . . .	132.10	0.9943 <sup>19</sup>
38	Pelargonic acid . . . . .	$\text{CH}_3(\text{CH}_2)_7\text{CO}_2\text{H}$ . . . . .	158.15	0.9068 <sup>11</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	.....	.....	171-3° C.	.....
2	.....	.....	.....	.....	124.6° <sup>769</sup>	.....
3	.....	.....	.....	.....	291.7°	.....
4	.....	.....	.....	.....	198.1°	.....
5	.....	soluble	∞	.....	153-5°	colorless . . . .
6	s. soluble	.....	.....	-10.5°	222.4° <sup>748</sup>	.....
7	insol.	soluble	soluble	14°	285.5-6° <sup>100</sup>	needles.....
8	insol.	s. soluble	v. soluble	-5°	dist.in vac.	oil.....
9	0.25; 1.7 <sup>100</sup>	soluble	soluble	150°	.....	thin prisms..
10	sol. acetone	soluble	insol. bz. chlo.	.....	.....	small red crys
11	v. soluble	v. soluble	v. soluble	106.5-8° anhy.	287-90°	moncl. prisms
12	v. soluble	v. soluble	v. soluble	172° dec.	.....	.....
13	soluble	v. s. sol.	v. v. s. sol.	235° dec.	.....	long need./w.
14	8.6 <sup>20</sup> ; 37.1 <sup>65</sup>	40 <sup>15</sup>	1.27 <sup>15</sup>	99° anhy.	sub. 150°+	moncl. prisms
15	v. s. sol.	.....	.....	187°	.....	cryst. powder
16	fumes in air	.....	.....	.....	70°	.....
17	1.7 <sup>17</sup>	v. v. s. sol.	.....	dec. 210°	.....	cryst. powder
18	0.04	.....	.....	417-9° dec.	.....	cryst. powder
19	s. soluble	v. soluble	v. soluble	149-50°	.....	needles/w....
20	insol.	insol.	insol.	245°	320°	scales.....
21	s. soluble	.....	sol. NH <sub>3</sub>	.....	.....	glit. prisms..
22	sol. hot	soluble	soluble	120°	dist.	long need./w.
23	v. soluble	v. soluble	.....	72-3°	.....	crystalline...
24	v. s. sol.	v. soluble	v. soluble	139.5°	290°	crystalline...
25	.....	1.13°	.....	62.62°	138-9° <sup>0</sup> mm.	..... [et.
26	.....	.....	s. soluble	58.5°	192-3° <sup>22</sup>	pearly scales
27	.....	.....	.....	64°	.....	.....
28	insol.	0.0043 <sup>21</sup>	v. soluble	62°	.....	.....
29	insol.	v. soluble	v. soluble	47°	240° <sup>15</sup>	silky needles.
30	.....	.....	.....	82.8°	.....	leaflets/al. . .
31	.....	.....	.....	31°	251.5° <sup>100</sup>	hexag. tab...
32	v. v. s. sol.	soluble	0.4 <sup>10</sup>	147°	.....	trimet. prism.
33	v. s. sol.	v. s. sol.	v. s. sol.	233° dec.	.....	v. small tab..
34	4.72 <sup>8</sup>	.....	.....	.....	.....	monoclinic...
35	insol.	insol.	.....	.....	sub.	.....
36	soluble	.....	.....	abt. 120°	.....	amorphous .
37	12 <sup>13</sup>	.....	.....	10.5°	124° C.	.....
38	s. soluble	soluble	soluble	12.5°	253-4°	leaflets.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Pentamethyl benzoic ac.	$(\text{CH}_3)_5\text{C}_6\text{CO}_2\text{H}$	192.13	.....
2	Pentaminobenzene	$\text{C}_6\text{H}(\text{NH}_2)_5$	153.09	.....
3	Penta-brombenzene	$\text{C}_6\text{HBr}_5$	472.81	.....
4	-chlor-aniline	$\text{Cl}_5\text{C}_6\text{NH}_2$	265.31	.....
5	" -benzene	$\text{C}_6\text{HCl}_5$	250.26	1.8342 <sup>18</sup>
6	-decane (n.)	$\text{CH}_3(\text{CH}_2)_{13}\text{CH}_3$	212.26	0.7689 <sup>32</sup>
7	-erythrite	$\text{C}(\text{CH}_2\text{OH})_4$	136.10	.....
8	-ethyl benzene	$\text{C}_6\text{H}(\text{C}_2\text{H}_5)_5$	218.21	0.8985 <sup>19</sup>
9	-methylene	$(\text{CH}_2)_5$	70.08	0.7506 <sup>32</sup>
10	" diamine	$\text{NH}_2\text{CH}_2(\text{CH}_2)_3\text{CH}_2\text{NH}_2$	102.20	0.8846 <sup>32</sup>
11	" dibromide	$\text{CH}_2\text{Br}(\text{CH}_2)_3\text{CH}_2\text{Br}$	230.00	.....
12	" cis-dicarmonic acid	$\text{C}_5\text{H}_8(\text{CO}_2\text{H})_2$	158.08	.....
13	" oxide	$\text{CH}_2 < (\text{CH}_2\text{CH}_2)_2 > \text{O}$	86.08	0.8800 <sup>0</sup>
14	-methyl phenol	$(\text{CH}_3)_5\text{C}_6\text{OH}$	164.13	.....
15	" rosaniline	$\text{C}_{24}\text{H}_{29}\text{N}_3\text{O}$	375.12	.....
16	Pentane (n.)	$\text{CH}_3(\text{CH}_2)_3\text{CH}_3$	72.10	0.6337 <sup>15</sup>
17	Penten(2)oi(1) acid	$\text{CH}_3\text{CH}_2\text{CH}:\text{CH}.\text{CO}_2\text{H}$	100.06	0.9921 <sup>15</sup>
18	Pentinoic acid	$\text{C}_4\text{H}_5.\text{CO}_2\text{H}$	98.05	.....
19	Perchlorether	$(\text{C}_2\text{Cl}_5)_2\text{O}$	418.50	1.900 <sup>14</sup>
20	Perseite (d. or l.)	$\text{C}_7\text{H}_{16}\text{O}_7$	212.13	.....
21	Phenanthrene-quinone	$\text{C}_6\text{H}_4\text{CO}_2\text{CO}_2\text{C}_6\text{H}_4$	208.06	1.4045
22	Phenanthrol	$\text{C}_{14}\text{H}_9\text{OH}$	194.08	.....
23	Phenazine	$\text{C}_6\text{H}_4 < \text{N}_2 > \text{C}_6\text{H}_4$	180.14	.....
24	Phenanthrene	$< (\text{C}_6\text{H}_4.\text{CH})_2 >$	178.08	1.063 <sup>100</sup>
25	Phenanthroline	$\text{C}_{12}\text{H}_8\text{N}_2 + 2\text{H}_2\text{O}$	216.14	.....
26	Phenetol (K.)	$\text{C}_6\text{H}_5\text{OC}_2\text{H}_5$	122.08	0.963 <sup>34</sup>
27	Phenol	$\text{C}_6\text{H}_5\text{OH}$	94.05	1.0597 <sup>33</sup>
28	-phthalein	$(\text{OHC}_6\text{H}_4)_2\text{CO}.\text{C}_6\text{H}_4\text{CO}$	318.12	.....
29	-sulphonic acid (o.)	$\text{OH}.\text{C}_6\text{H}_4.\text{SO}_3\text{H}$	174.11	.....
30	" " (m.)	$\text{OH}.\text{C}_6\text{H}_4.\text{SO}_3\text{H} + 2\text{H}_2\text{O}$	192.03	.....
31	" " (p.)	$\text{OH}.\text{C}_6\text{H}_4.\text{SO}_3\text{H}$	174.11	.....
32	Phenoxybenzoic ac. (o.)	$\text{C}_6\text{H}_5\text{OC}_6\text{H}_4\text{CO}_2\text{H}$	214.08	.....
33	Phentriazine (a.)	$\text{C}_7\text{H}_5\text{N}_3$	131.16	.....
34	Phenyl acetate	$\text{CH}_3.\text{CO}_2.\text{C}_6\text{H}_5$	136.06	1.0927 <sup>2</sup>
35	-acetic acid	$\text{C}_6\text{H}_5\text{CH}_2.\text{CO}_2\text{H}$	136.06	1.0778 <sup>63</sup>
36	-acetylene	$\text{C}_6\text{H}_5\text{C}:\text{CH}$	102.05	0.9295 <sup>32</sup>
37	-acridine	$\text{C}_6\text{H}_4\text{NC}(\text{C}_6\text{H}_5)\text{C}_6\text{H}_4$	255.15	.....
38	-allylene	$\text{C}_6\text{H}_5.\text{C}:\text{C}.\text{CH}_3$	116.06	.....
39	-amimo-propionic acid ( $\beta\alpha$ )	$\text{C}_6\text{H}_5\text{CH}_2.\text{CH}(\text{NH}_2)\text{CO}_2\text{H}$	165.13	.....
40	-amimo " acid ( $\beta\beta$ )	$\text{C}_6\text{H}_5\text{CH}(\text{NH}_2)\text{CH}_2.\text{CO}_2\text{H}$	165.13	.....
41	-anthracene	$\text{C H}_5.\text{C}_{14}\text{H}_9$	254.12	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. v. s. sol.	soluble	.....	210.5°	sub.	fine need./w.
2	v. soluble	insol.	insol.	.....	.....	needles.....
3	.....	v. s. sol. <sup>78</sup>	.....	260°	sub.	need./bz. + al.
4	.....	v. soluble	v. soluble	232°	.....	long need./al.
5	.....	v. v. s. sol.	v. v. sol.	85-6°	275-6°	fine need./al.
6	.....	.....	.....	10°	270.5° C.	.....
7	5.1 <sup>15</sup>	.....	.....	253°	.....	tetragonal ...
8	.....	.....	.....	< -20°	277° C.	.....
9	.....	.....	.....	.....	50.2-.8°	oil.....
10	v. soluble	v. soluble	s. soluble	abt. 15°	178-9°	syrup.....
11	.....	.....	.....	.....	204-6°	.....
12	soluble	.....	.....	140°	160°→anh.	long needles .
13	soluble	∞	∞	.....	81-2°	.....
14	.....	.....	.....	125°	267°	needles/al....
15	insol.	soluble	insol.	130°	.....	red brown
16	.....	.....	.....	.....	36-6.5° C.	.....[powder
17	8 <sup>20</sup>	.....	.....	9.5-10.5°	200-1° C.	.....
18	v. soluble	.....	v. soluble	102-3°	.....	monc. tab./et.
19	.....	.....	.....	69°	decom.	scales.....
20	6.9 <sup>18</sup>	v. s. sol.	.....	188° C.	.....	sm. needles..
21	v. s. sol. hot	s. soluble	s. soluble	202°	>360°	yel. orange ne
22	s. soluble	v. soluble	v. soluble	112°	.....	fluoresc. leaf.
23	v. s. sol.	2	s. soluble	170-1°	>360° sub.	long yel. need
24	insol.	2.62 <sup>16</sup>	v. soluble	100°	340°	moncl./al....
25	v. v. s. sol.	∞	v. v. s. sol.	78° anhyd.	>360°	long needles .
26	.....	soluble	∞	-34°	170-2°	colorless.....
27	6.7	∞	∞	42.5-3°	183°	large rhb. nee.
28	s. sol. hot	soluble	s. soluble	250-3°	.....	triclinic.....
29	v. soluble	v. soluble	.....	.....	.....	.....
30	soluble	soluble	.....	.....	.....	fine needles..
31	soluble	soluble	.....	.....	.....	syrup.....
32	v. v. s. sol.	v. soluble	v. soluble	113°	355° dec.	leaf./dil. al..
33	v. sol. hot	v. soluble	v. soluble	74-5°	235-40°	yel. need.bz. .
34	.....	.....	.....	.....	196°	.....
35	s. soluble	v. soluble	v. soluble	76.5°	265.5° C.	thin leaflets.
36	.....	.....	.....	.....	141.6°	.....
37	.....	s. soluble	mod. sol.	181°	403-4°	leaf. or prisms
38	.....	.....	.....	.....	185°	.....
39	mod. sol.	v.s. sol. hot	insol.	263-5° dec	sub. part.	leaf. or prisms
40	mod. sol.	v. soluble	v. v. s. sol.	120-1°	.....	lrg. moncl./w.
41	.....	v. soluble	v. soluble	152-3°	417°	leaflets/al....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Phenyl benzoate . . . . .	$C_6H_5CO_2C_6H_5$ . . . . .	198.08	.....
2	-benzoic acid (o.) . . . .	$C_6H_5.C_6H_4.CO_2H$ . . . . .	198.08	.....
3	“ “ (m.) . . . .	$C_6H_5.C_6H_4.CO_2H$ . . . . .	198.08	.....
4	“ “ (p.) . . . .	$C_6H_5.C_6H_4.CO_2H$ . . . . .	198.08	.....
5	-butyric acid ( $\gamma$ ) . . . .	$C_6H_5(CH_2)_3CO_2H$ . . . . .	164.10	.....
6	carbonate . . . . .	$(C_6H_5)_2CO_3$ . . . . .	214.08	.....
7	-crotonic acid ( $\beta\gamma$ ) . . . .	$C_6H_5CH:CH.CH_2.CO_2H$ . . . . .	162.08	.....
8	cyanide . . . . .	$C_6H_5CN$ . . . . .	103.08	1.0084 <sup>17</sup>
9	“ (K.) . . . . .	$C_6H_5CN$ . . . . .	103.08	1.0235 <sup>18</sup>
10	disulphide . . . . .	$(C_6H_5)_2S_2$ . . . . .	218.20	.....
11	ditolylmethane . . . . .	$C_6H_5.CH.(C_6H_4.CH_3)_2$ . . . . .	272.16	.....
12	-ether . . . . .	$(C_6H_5)_2O$ . . . . .	170.08	.....
13	formanilid . . . . .	$HCO_2N(C_6H_5)_2$ . . . . .	197.13	1.23
14	formate . . . . .	$HCO_2C_6H_5$ . . . . .	122.05	.....
15	-glucosazone . . . . .	$C_{18}H_{22}N_4O_4$ . . . . .	358.34	.....
16	-glyoxylic acid . . . . .	$C_6H_5.CO.CO_2H$ . . . . .	134.05	.....
17	-hydrazine . . . . .	$C_6H_5HN.NH_2$ . . . . .	108.14	1.097 <sup>23</sup>
18	isocyanide . . . . .	$C_6H_5NC$ . . . . .	103.08	0.9775 <sup>15</sup>
19	- $\alpha$ -lactic acid ( $\beta$ ) . . . . .	$C_6H_5CH_2.CH(OH).CO_2H$ . . . . .	166.08	.....
20	- $\beta$ -lactic acid ( $\beta$ ) . . . . .	$C_6H_5CH(OH).CH_2.CO_2H$ . . . . .	166.08	.....
21	mustard oil . . . . .	$C_6H_5NCS$ . . . . .	135.14	1.135 <sup>15</sup>
22	naphthaline ( $\alpha$ ) . . . . .	$C_{10}H_7.C_6H_5$ . . . . .	204.10	.....
23	“ ( $\beta$ ) . . . . .	$C_{10}H_7.C_6H_5$ . . . . .	204.10	.....
24	$\beta$ -naphthylamine . . . . .	$C_{10}H_7.NH.C_6H_5$ . . . . .	219.15	.....
25	naphthyl methane . . . . .	$C_{10}H_7.CH_2.C_6H_5$ . . . . .	218.11	1.165 <sup>0</sup>
26	$\alpha$ -naphthyl ketone . . . . .	$C_{10}H_7.CO.C_6H_5$ . . . . .	232.10	.....
27	$\beta$ “ “ . . . . .	$C_{10}H_7.CO.C_6H_5$ . . . . .	232.10	.....
28	-phenol (m.) . . . . .	$C_6H_5.C_6H_4.OH$ . . . . .	170.08	.....
29	“ (p.) . . . . .	$C_6H_5.C_6H_4.OH$ . . . . .	170.08	.....
30	phosphine . . . . .	$C_6H_5PH_2$ . . . . .	110.06	1.001 <sup>15</sup>
31	phosphinic acid . . . . .	$C_6H_5PO(OH)_2$ . . . . .	158.06	1.475
32	phosphenige acid . . . . .	$C_6H_5PO(OH)H$ . . . . .	142.06	.....
33	-propionic acid . . . . .	$C_6H_5.C: C.CO_2H$ . . . . .	146.05	.....
34	-propyl alcohol (sec.) . . . .	$C_6H_5.CH(OH).C_2H_5$ . . . . .	136.10	0.994 <sup>32</sup>
35	“ ( $\beta$ ) . . . . .	$C_6H_5(CH_2)_2CH_2OH$ . . . . .	136.10	1.008 <sup>18</sup>
36	-pyridine ( $\alpha$ ) . . . . .	$C_6H_5.C_5H_4N$ . . . . .	155.11	1. +
37	“ ( $\beta$ ) . . . . .	$C_6H_5.C_5H_4N$ . . . . .	155.11	1. +

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	mod. sol.	mod. sol.	68-9°	314° C.	moncl. prism
2	s. sol. hot	v. soluble	.....	110-1°	343-4°	sm. need./al.
3	s. soluble	v. soluble	v. soluble	160-1°	.....	leaflets/al. ...
4	v. v. s. sol.	v. soluble	v. soluble	218-9°	sub.	long need./al.
5	mod.sol. hot	v. soluble	v. soluble	47.5°	290°	flat leaf./w...
6	.....	.....	.....	78°	301-2°	silky need./al.
7	v. s. sol.	v. soluble	v. soluble	86°	302°	thin need./w.
8	1 <sup>100</sup>	∞	∞	-17°	190.6° C.	.....
9	1 <sup>100</sup>	soluble	∞	-17°	189-91°	colorless.....
10	insol.	soluble	v. soluble	60-1°	310° dec.	needles .....
11	v. sol. chlo.	soluble	v. soluble *	55-6°	.....	small prisms.
12	v. v. s. sol.	v. soluble	soluble	28°	252.3°	need. or pris.
13	sol. hot	soluble	soluble	73-4°	210-20° in vac.	orthorhomb. /al.
14	.....	.....	.....	.....	179-80° de.	.....
15	v. v. s. sol. mod. sol. hot	.....	.....	204-5°	.....	fine yel. need. /al.
16	.....	v. soluble	insol. CS <sub>2</sub>	65-6°	.....	crystalline...
17	v. s. sol.	∞	∞	17.5°	243.5°	monoclinic...
18	.....	.....	.....	.....	165-6° dec.	greenish.....
19	soluble	.....	.....	97-8°	.....	thick pris./w.
20	v. soluble	.....	.....	93°	.....	prisms.....
21	insol.	soluble	soluble	.....	218.5°	.....
22	.....	v. soluble	v. soluble	no m.p.	324-5°	.....
23	v. sol. bz.	v. soluble	v. soluble	102-2.5°	345° C.	leaflets.....
24	.....	soluble	v. sol. chlo.	107.5-8°	395-9.5°	thin needles .
25	50 CS <sub>2</sub>	1.67 <sup>15</sup> ; 3.33 <sup>78</sup>	.....	58.6°	350°	tab./al., pris. /et.
26	.....	2.49 <sup>12</sup>	.....	75.5°	385°	triclin. prisms
27	.....	2.01 <sup>12</sup>	.....	82°	.....	long needles .
28	s. soluble	s. soluble	s. soluble	185°	.....	leaflets/w....
29	sol. hot	v. soluble	v. soluble	164-5°	305-8°	silky need.
30	.....	.....	.....	.....	160-1°	/dil. al.
31	23.5 <sup>15</sup>	soluble	soluble	158°	250° dec.	rhomb. leaf..
32	7.12 <sup>14</sup> ; 211 <sup>100</sup>	soluble	soluble	70°	dec.	leaflets.....
33	v. s. sol.	v. sol.	v. sol.	136-7°	sub.	trimet. prisms
34	.....	.....	.....	.....	212°	.....
35	s. soluble	∞	∞	< -18°	235°	thick liquid..
36	insol.	.....	.....	.....	268.5-70.5 <sup>749</sup>	.....
37	insol.	v. soluble	v. soluble	.....	269-70 <sup>749</sup>	oil.....

\* Very soluble CS<sub>2</sub> and benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Phenyl pyridine (α) . . . . .	$C_6H_5.C_5H_4N$ . . . . .	155.11	.....
2	-quinoline (α) . . . . .	$C_6H_5.C_{10}H_6N$ . . . . .	205.13	.....
3	“ (o.) . . . . .	$C_6H_5.C_{10}H_6N$ . . . . .	205.13	.....
4	salicylate . . . . .	$OH.C_6H_4.CO_2.C_6H_5$ . . . . .	214.08	.....
5	semicarbazid . . . . .	$C_6H_5.NH.NH.CONH_2$ . . . . .	151.19	.....
6	sulphide . . . . .	$(C_6H_5)_2S$ . . . . .	186.14	1.1175
7	sulphone . . . . .	$(C_6H_5)_2SO_2$ . . . . .	218.14	.....
8	thiourea . . . . .	$NH_2.CS.NHC_6H_5$ . . . . .	152.20	.....
9	toluene (o.) . . . . .	$C_6H_5.C_6H_4.CH_3$ . . . . .	168.10	.....
10	“ (m.) . . . . .	$C_6H_5.C_6H_4.CH_3$ . . . . .	168.10	1.031 <sup>0</sup>
11	“ (p.) . . . . .	$C_6H_5.C_6H_4.CH_3$ . . . . .	168.10	1.015 <sup>27</sup>
12	o-tolyl ketone . . . . .	$C_6H_5.CO.C_6H_4.CH_3$ . . . . .	196.10	.....
13	m-tolyl ketone . . . . .	$C_6H_5.CO.C_6H_4.CH_3$ . . . . .	196.10	1.088 <sup>17</sup> . . . . .
14	p-tolyl ketone . . . . .	$C_6H_5.CO.C_6H_4.CH_3$ . . . . .	196.10	.....
15	urea . . . . .	$C_6H_5NH.CO.NH_2$ . . . . .	136.14	.....
16	Phenylene-diacetic ac. (o.)	$C_6H_4(CH_2CO_2H)_2$ . . . . .	194.08	.....
17	“ (m.)	$C_6H_4(CH_2CO_2H)_2$ . . . . .	194.08	.....
18	“ (p.)	$C_6H_4(CH_2CO_2H)_2$ . . . . .	194.08	.....
19	-diamine (o.) . . . . .	$C_6H_4(NH_2)_2$ . . . . .	108.14	.....
20	“ (m.) . . . . .	$C_6H_4(NH_2)_2$ . . . . .	108.14	1.1389 <sup>15</sup>
21	“ (p.) . . . . .	$C_6H_4(NH_2)_2$ . . . . .	108.14	.....
22	“ (3) sulphonic ac. (o.)	$(NH_2)_2C_6H_3SO_3H + 1\frac{1}{2}H_2O$	205.23	.....
23	Phloroglucin . . . . .	$1: 2: 3C_6H_3(OH)_3 + 2H_2O$	162.08	.....
24	triethyl ether . . . . .	$1: 2: 3C_6H_3(OC_2H_5)_3$ . . . . .	210.15	.....
25	trimethyl “ . . . . .	$1: 2: 3C_6H_3(OCH_3)_3$ . . . . .	168.10	.....
26	trioxime . . . . .	$C_6H_6(NO_2)_3$ . . . . .	171.19	.....
27	Phoron . . . . .	$(CH_3)_2C: CHCOCH: C(CH_3)_2$	138.12	0.8850
28	Phosphenyl chloride . . . . .	$C_6H_5PCl_2$ . . . . .	178.94	1.319 <sup>20</sup>
29	Phospho-benzene . . . . .	$C_6H_5P: PC_6H_5$ . . . . .	216.08	.....
30	Phthalic acid . . . . .	$o.C_6H_4(CO_2H)_2$ . . . . .	166.05	1.585–1.593
31	aldehyde . . . . .	$o.C_6H_4(CHO)_2$ . . . . .	134.05	.....
32	anhydride . . . . .	$C_6H_4 < (CO)_2 > O$ . . . . .	148.03	1.527 <sup>4</sup>
33	Phthalid . . . . .	$C_6H_4.CH_2.O.CO-$ . . . . .	134.05	.....
34	Phthalimide . . . . .	$o.C_6H_4 < (CO)_2 > NH$ . . . . .	147.08	.....
35	Phthalyl chloride (o.) . . . . .	$C_6H_4C_2O_2.Cl_2$ . . . . .	202.93	1.4089 <sup>22</sup>
36	“ “ (m.) . . . . .	$C_6H_4C_2O_2.Cl_2$ . . . . .	202.93	.....
37	“ “ (p.) . . . . .	$C_6H_4C_2O_2.Cl_2$ . . . . .	202.93	.....
38	Picoline (α) . . . . .	$CH_3.C_5H_4N$ . . . . .	93.10	0.9526 <sup>10</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	mod. sol hot	.....	.....	77-8°	274-5°	glit. leaf./w..
2	s. soluble	v. soluble	v. soluble	86°	>300°	long need. /dil. al.
3	.....	v. soluble	v. soluble	.....	283° <sup>187</sup>	thick oil.....
4	v. v. s. sol.	v. sol. hot	v. soluble	42-2.5°	172-3° <sup>12</sup>	rhomb. tab. .
5	s. soluble	v. soluble	.....	172°	.....	leaf./dil. al...
6	insol.	soluble	∞; ∞ CS <sub>2</sub> and bz.	.....	292-4°	.....
7	s. sol. hot	s. soluble	sol.; sol. bz.	128-9°	376.4° <sup>722</sup>	moncl. pris. bz.
8	0.25 <sup>100</sup>	mod. sol.	.....	143-5°	.....	trimet./al....
9	.....	.....	.....	.....	258-60°	.....
10	.....	.....	.....	.....	272-7°	.....
11	.....	.....	.....	-2-3°	263-7°	.....
12	..... [chlo.	.....	.....	< -18°	315-6° C.	.....
13	∞ bz. and	∞	∞	.....	314-6° <sup>745</sup>	.....
14	v. sol. bz.	mod. sol.	v. soluble	*	326° C.	hex. or moncl.
15	s. sol. hot	v. soluble	v. soluble	147°	.....	moncl. need..
16	s. soluble	v. soluble	v. soluble	150°	.....	fine needles..
17	soluble	v. soluble	v. soluble	170°	dist. dec.	needles/w....
18	v. s. sol.	v. soluble	v. soluble	244°	dist.	flat needles..
19	s. soluble	v. soluble	v. soluble	102-3°	256-8°	quad. tab./ch
20	soluble	v. soluble	v. soluble	63°	282-4°	rhombic.....
21	mod. sol.	v. soluble	v. soluble	140°	267°	monoclin./w.
22	1.04 <sup>10</sup>	v. s. sol.	v. s. sol.	.....	.....	rhomb. tab...
23	v. soluble	v. soluble	v. soluble	217-9°	sub. dec.	rhomb. tab. .
24	insol. .	v. v. sol.	v. v. sol.	43°	175° <sup>24</sup>	(vol. with st)
25	v. sol. bz.	v. soluble	v. soluble	52°	255.5° C.	prisms/al....
26	v. s. sol.	v. s. sol.	sol. chlo.	exp. 155°	.....	cryst. powd..
27	.....	.....	.....	28°	198.5°	pale yel. cryst
28	dec.	∞ C <sub>6</sub> H <sub>6</sub>	∞ CS <sub>2</sub>	.....	224.6° C.	.....
29	insol.	insol.	insol.	149-50°	.....	pale yel. pow.
30	0.54 <sup>14</sup>	10.08 <sup>15</sup>	0.68 <sup>15</sup>	184°	.....	rhombic.....
31	soluble	.....	.....	52°	.....	.....
32	s. sol. hot	soluble	sol. CS <sub>2</sub>	128°	284.5° C.	rhomb. pris..
33	v. s. sol.	v. soluble	.....	73°	290°	needles/w....
34	insol. bz.	insol. lig.	s. soluble	233.5° C.	sub.	hexag. pris./et
35	.....	.....	.....	0°	275.4° <sup>726</sup>	oil. ....
36	.....	.....	.....	41°	276°	cryst. mass..
37	.....	.....	.....	77-8°	259°	needles .....
38	.....	.....	.....	.....	133.5° C.	.....

\* The hexagonal crystals melt at 55°, while the monoclinic crystals melt at 60°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Picolene ( $\beta$ ) . . . . .	$\text{CH}_3\text{C}_5\text{H}_4\text{N}$ . . . . .	93.10	0.9726 $\frac{1}{2}$
2	" ( $\gamma$ ) . . . . .	$\text{CH}_3\text{C}_5\text{H}_4\text{N}$ . . . . .	93.10	0.9742 $\frac{1}{2}$
3	Picolinic acid (2) . . . . .	$\text{C}_5\text{H}_4\text{N}\cdot\text{CO}_2\text{H}$ . . . . .	123.08	.....
4	Picramide . . . . .	$\text{NH}_2\text{C}_6\text{H}_2(\text{NO}_2)_3$ . . . . .	228.19	.....
5	Picramic acid . . . . .	$\text{OH}\cdot\text{C}_6\text{H}_2(\text{NO}_2)_2\text{NH}_2$ . . . . .	199.16	.....
6	Picric acid . . . . .	$\text{OH}\cdot\text{C}_6\text{H}_2(\text{NO}_2)_3$ . . . . .	229.15	1.813
7	Pimelic acid (n.) . . . . .	$\text{CO}_2\text{H}\cdot(\text{CH}_2)_5\text{CO}_2\text{H}$ . . . . .	160.00	.....
8	Pinacoline . . . . .	$\text{CH}_3\cdot\text{CO}\cdot\text{C}(\text{CH}_3)_3$ . . . . .	100.10	0.7999 $\frac{1}{16}$
9	Pinacone . . . . .	$(\text{CH}_3)_2\text{C}(\text{OH})\text{C}(\text{OH})$ $(\text{CH}_3)_2$ . . . . .	118.12	0.9672 $\frac{1}{16}$
10	Pinacolyl alcohol . . . . .	$(\text{CH}_3)_3\text{C}\cdot\text{CH}(\text{OH})\cdot\text{CH}_3$ . . . . .	102.12	0.8347 $\frac{0}{0}$
11	Pinene . . . . .	$\text{C}_{10}\text{H}_{16}$ . . . . .	136.13	0.8587 $\frac{20}{0}$
12	Pinol . . . . .	$\text{C}_{10}\text{H}_{16}\text{O}$ . . . . .	152.13	0.9420 $\frac{20}{0}$
13	Piperidine . . . . .	$\text{CH}_2 < (\text{CH}_2\cdot\text{CH}_2)_2 > \text{NH}$ . . . . .	85.13	0.8603 $\frac{3}{4}$
14	Piperonal . . . . .	$\text{CH}_2 < \text{O}_2 > \text{C}_6\text{H}_5\cdot\text{CHO}$ . . . . .	150.05	.....
15	Piperonyl alcohol . . . . .	$\text{CH}_2 < \text{O}_2 > \text{C}_6\text{H}_5\cdot\text{CH}_2\text{OH}$ . . . . .	152.06	.....
16	Polyglycolid . . . . .	$(\text{CO}\cdot\text{CH}_2\cdot\text{O})_x$ . . . . .	58.02	.....
17	Populin . . . . .	$\text{C}_{20}\text{H}_{22}\text{O}_8 + 2\text{H}_2\text{O}$ . . . . .	426.22	.....
18	Prehnitene . . . . .	1: 2: 3: $4\text{C}_6\text{H}_2\cdot(\text{CH}_3)_4$ . . . . .	134.11	.....
19	Prehnitic acid . . . 1: 2: 3: 4	$\text{C}_6\text{H}_2(\text{CO}_2\text{H})_4 + 2\text{H}_2\text{O}$ . . . . .	290.12	.....
20	Propargyl acetate . . . . .	$\text{CH}_3\cdot\text{CO}_2\cdot\text{C}_3\text{H}_3$ . . . . .	98.05	1.005 $\frac{3}{2}$
21	alcohol . . . . .	$\text{CH}\cdot\text{C}\cdot\text{CH}_2\text{OH}$ . . . . .	56.03	0.972 $\frac{3}{2}$
22	Propane . . . . .	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CH}_3$ . . . . .	44.07	0.535 $\frac{0}{0}$
23	Propiolic acid . . . . .	$\text{CH}\cdot\text{C}\cdot\text{CO}_2\text{H}$ . . . . .	70.02	.....
24	Propion amide . . . . .	$\text{C}_2\text{H}_5\cdot\text{CONH}_2$ . . . . .	73.10	1.0335
25	Propionic acid . . . . .	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CO}_2\text{H}$ . . . . .	74.05	0.9937 $\frac{20}{0}$
26	" " (K.) . . . . .	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CO}_2\text{H}$ . . . . .	74.05	0.991 $\frac{1}{4}$
27	aldehyde . . . . .	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CHO}$ . . . . .	58.05	0.8066 $\frac{3}{2}$
28	anhydride . . . . .	$(\text{CH}_3\text{CH}_2\cdot\text{CO})_2\text{O}$ . . . . .	130.08	1.0169 $\frac{1}{16}$
29	Propyl acetate (n.) . . . . .	$\text{CH}_3\text{CO}_2\cdot\text{C}_3\text{H}_7$ . . . . .	102.05	0.8908 $\frac{1}{2}$
30	-acetylene . . . . .	$\text{C}_3\text{H}_7\cdot\text{C}\cdot\text{CH}$ . . . . .	68.08	.....
31	alcohol . . . . .	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CH}_2\text{OH}$ . . . . .	60.06	0.804 $\frac{3}{2}$
32	amine . . . . .	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CH}_2\text{NH}_2$ . . . . .	59.11	0.7186 $\frac{20}{0}$
33	-benzene . . . . .	$\text{CH}_3(\text{CH}_2)_2\cdot\text{C}_6\text{H}_5$ . . . . .	120.10	0.8702 $\frac{1}{16}$
34	benzoate . . . . .	$\text{C}_6\text{H}_5\cdot\text{CO}_2(\text{CH}_2)_2\text{CH}_3$ . . . . .	164.10	1.0316 $\frac{1}{16}$
35	-benzoic acid (o.) . . . . .	$\text{CH}_3(\text{CH}_2)_2\cdot\text{C}_6\text{H}_4\cdot\text{CO}_2\text{H}$ . . . . .	164.10	.....
36	" " (p.) . . . . .	$\text{CH}_3(\text{CH}_2)_2\cdot\text{C}_6\text{H}_4\cdot\text{CO}_2\text{H}$ . . . . .	164.10	.....
37	bromide . . . . .	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CH}_2\text{Br}$ . . . . .	123.02	1.3577 $\frac{1}{16}$
38	butyl ether . . . . .	$\text{C}_3\text{H}_7\cdot\text{O}\cdot\text{C}_4\text{H}_9$ . . . . .	116.13	0.7773 $\frac{0}{0}$
39	butyrate . . . . .	$\text{C}_3\text{H}_7\text{CO}_2\cdot\text{C}_3\text{H}_7$ . . . . .	130.12	0.8789 $\frac{1}{16}$

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	∞	.....	.....	.....	143.5° C.	.....
2	.....	.....	.....	.....	142.5–4.5C.	.....
3	v. soluble	v. soluble	v. v. s. sol.	134.5–6°	sub.	fine needles..
4	insol.	insol.	sol. acet.	188°	.....	yel. mon. tab.
5	0.14 <sup>22</sup>	mod. sol.	s. soluble	168–9°	.....	moncl. prisms /chlo.
6	1.161 <sup>15</sup>	v. soluble	v. soluble	122.5°	exp.	yel. leaf./w..
7	5 <sup>20</sup>	v. soluble	v. soluble	105°	272° <sup>100</sup>	rhombic/w...
8	v. v. s. sol.	.....	.....	.....	106° C.	.....
9	s. soluble	v. soluble	.....	35–8°	172–3°	small needles
10	.....	soluble	.....	4°	120–1°	silky needles.
11	v. s. sol.	soluble	∞	.....	156°	.....
12	.....	.....	.....	.....	184°	.....
13	∞	soluble	.....	–17°	106°	.....
14	0.2	∞ <sup>78</sup>	∞	37°	263°	long glit. crys.
15	s. soluble	∞	∞	51°	dec.	long crystals.
16	insol.	.....	.....	220°	.....	powder.....
17	0.4 <sup>15</sup> ; 42 <sup>100</sup>	mod. sol.	.....	180°	.....	v. fine needles
18	.....	.....	.....	–4°	204°	.....
19	v. soluble	.....	soluble	238° dec.	→anhyd.	large irreg. pr.
20	.....	soluble	soluble	.....	124–5°	.....
21	soluble	∞	∞	.....	114–5°	.....
22	.....	600 c.c.	.....	.....	–38–9°	.....
23	soluble	soluble	soluble	6°	144° dec.	long crystals.
24	.....	insol.	soluble	79°	213°	leaflets/chlo..
25	∞	∞	∞	–22° C.	140.7° C.	.....
26	∞	∞	∞	.....	140–1°	colorless.....
27	20 <sup>20</sup>	∞	∞	.....	48.8° C.	.....
28	insol.	.....	.....	.....	168.6°	.....
29	1.6	∞	∞	.....	101.6°	.....
30	.....	.....	.....	.....	48–9°	.....
31	∞	∞	∞	.....	97.4° C.	.....
32	soluble	.....	.....	.....	49°	.....
33	insol.	soluble	soluble	.....	158.2° <sup>752</sup>	.....
34	.....	.....	.....	.....	229.5° C.	.....
35	soluble	.....	.....	58°	.....	leaf./dil. al..
36	s. sol. hot	• soluble	v. soluble	140°	.....	leaflets/w....
37	.....	.....	.....	.....	70.82° C.	.....
38	.....	.....	.....	.....	117.1°	.....
39	.....	∞	∞	.....	142.7°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Propyl chloride . . . . .	$\text{CH}_3.\text{CH}_2.\text{CH}_2\text{Cl}$ . . . . .	78.51	0.8915 <sup>18</sup>
2	“ “ (sec.) . . . . .	$\text{CH}_3.\text{CHCl}.\text{CH}_3$ . . . . .	78.51	0.8588 <sup>20</sup>
3	cyanide . . . . .	$\text{CH}_3.\text{CH}_2.\text{CH}_2\text{CN}$ . . . . .	69.10	0.796 <sup>18</sup>
4	ether . . . . .	$(\text{CH}_3.\text{CH}_2.\text{CH}_2)_2\text{O}$ . . . . .	102.12	0.7443 <sup>21</sup>
5	fluoride . . . . .	$\text{CH}_3.\text{CH}_2.\text{CH}_2\text{F}$ . . . . .	62.06	.....
6	formate . . . . .	$\text{HCO}_2.\text{C}_3\text{H}_7$ . . . . .	88.06	0.9095 <sup>17</sup>
7	glycollate . . . . .	$\text{C}_5\text{H}_{10}\text{O}_3$ . . . . .	118.08	1.0621 <sup>18</sup>
8	hexamethylene . . . . .	$\text{C}_6\text{H}_{12}$ . . . . .	126.15	.....
9	hexyl ketone . . . . .	$\text{C}_3\text{H}_7.\text{CO}.\text{C}_6\text{H}_{13}$ . . . . .	156.16	0.824 <sup>18</sup>
10	iodide . . . . .	$\text{CH}_3.\text{CH}_2.\text{CH}_2\text{I}$ . . . . .	170.03	1.7472 <sup>16</sup>
11	“ (K.) . . . . .	$\text{CH}_3.\text{CH}_2.\text{CH}_2\text{I}$ . . . . .	170.03	1.742 <sup>18</sup>
12	isobutyl ketone . . . . .	$\text{C}_3\text{H}_7.\text{CO}.\text{CH}_2.\text{CH}(\text{CH}_3)_2$ . . . . .	128.13	0.813 <sup>18</sup>
13	mercaptan . . . . .	$\text{CH}_3.\text{CH}_2.\text{CH}_2\text{SH}$ . . . . .	76.13	.....
14	mustard oil . . . . .	$\text{C}_8\text{H}_7.\text{NCS}$ . . . . .	101.15	0.9909 <sup>0</sup>
15	nitrate . . . . .	$\text{C}_3\text{H}_7.\text{NO}_3$ . . . . .	105.10	1.0631 <sup>18</sup>
16	nitrite . . . . .	$\text{C}_3\text{H}_7.\text{NO}_2$ . . . . .	89.10	0.935 <sup>21</sup>
17	phenol (m.) . . . . .	$\text{C}_6\text{H}_5.\text{OH}$ . . . . .	136.10	.....
18	phenyl ketone . . . . .	$\text{C}_6\text{H}_5.\text{CO}.\text{C}_6\text{H}_5$ . . . . .	148.10	1.009 <sup>0</sup>
19	propionate . . . . .	$\text{C}_2\text{H}_5.\text{CO}_2.\text{C}_3\text{H}_7$ . . . . .	116.10	0.8885 <sup>18</sup>
20	pyridine (a) . . . . .	$\text{C}_5\text{H}_5.\text{N}$ . . . . .	121.13	< 1.
21	sulphide . . . . .	$(\text{CH}_3.\text{CH}_2.\text{CH}_2)_2\text{S}$ . . . . .	118.18	0.814 <sup>17</sup>
22	Propylene . . . . .	$\text{CH}_3.\text{CH}:\text{CH}_2$ . . . . .	42.05	1.498
23	bromide . . . . .	$\text{CH}_3.\text{CHBr}.\text{CH}_2\text{Br}$ . . . . .	201.97	1.9307 <sup>18</sup>
24	chloride . . . . .	$\text{CH}_3.\text{CHCl}.\text{CH}_2\text{Cl}$ . . . . .	112.95	1.1656 <sup>14</sup>
25	iodide . . . . .	$\text{CH}_3.\text{CHI}.\text{CH}_2\text{I}$ . . . . .	276.06	1.040 <sup>19</sup>
26	oxide . . . . .	$\text{CH}_3(\text{CH}.\text{CH}_2)\text{O}$ . . . . .	58.05	0.859 <sup>0</sup>
27	Proto-catechuic acid. 3,4. . . . .	$(\text{OH})_2\text{C}_6\text{H}_3.\text{CO}_2\text{H} + \text{H}_2\text{O}$ . . . . .	172.07	1.5415 <sup>4</sup>
28	aldehyde . . . . .	$3,4(\text{OH})_2\text{C}_6\text{H}_3.\text{CHO}$ . . . . .	138.05	.....
29	Pseudo-cumene . . . . .	1: 2: $4\text{C}_6\text{H}_3(\text{CH}_3)_3$ . . . . .	120.10	0.8787 <sup>19</sup>
30	“ “ (K.) . . . . .	1: 2: $4\text{C}_6\text{H}_3(\text{CH}_3)_3$ . . . . .	120.10	0.8745 <sup>18</sup>
31	Pseudo-cumenol . . . . .	2: 4: $5(\text{CH}_3)_3\text{C}_6\text{H}_2.\text{OH}$ . . . . .	136.10	.....
32	phenanthroline . . . . .	$\text{C}_{12}\text{H}_8\text{N}_2 + 4\text{H}_2\text{O}$ . . . . .	252.21	.....
33	Purpurin 1: 2: 4 . . . . .	$(\text{OH})_3\text{C}_6\text{H} < (\text{CO})_2 > \text{C}_6\text{H}_4$ . . . . .	256.06	.....
34	Pyrazine . . . . .	$\text{N} < (\text{CH}.\text{CH})_2 > \text{N}$ . . . . .	80.11	.....
35	Pyrazine (o.) . . . . .	$\text{N}_2 < (\text{CH}.\text{CH})_2 >$ . . . . .	80.11	1.1070 <sup>19</sup>
36	Pyrazol . . . . .	$\text{N} < (\text{CH})_3 > \text{NH}$ . . . . .	64.11	.....
37	Pyrazoline . . . . .	$\text{NH} < \begin{smallmatrix} \text{N}:\text{CH} \\ \text{CH}.\text{CH}_2 \end{smallmatrix} >$ . . . . .	66.13	.....
38	Pyrene . . . . .	$\text{C}_{16}\text{H}_{10}$ . . . . .	202.08	.....
39	Pyridine . . . . .	$\text{CH} < (\text{CH}.\text{CH})_2 > \text{N}$ . . . . .	79.08	0.9855 <sup>18</sup>
40	“ (K.) . . . . .	$\text{CH} < (\text{CH}.\text{CH})_2 > \text{N}$ . . . . .	79.08	0.976 <sup>18</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	.....	.....	46.5°	.....
2	.....	.....	.....	.....	36.5°	.....
3	.....	.....	.....	.....	118.5°	.....
4	soluble	∞	∞	.....	90.7°	.....
5	.....	.....	.....	.....	2°	.....
6	s. soluble	∞	∞	.....	81°	.....
7	.....	.....	.....	.....	170.5° C.	.....
8	.....	.....	.....	.....	147.5–9.5	.....
9	.....	.....	.....	–9°	206–7°	.....
10	0.107 <sup>20</sup>	.....	.....	.....	102.2° C.	.....
11	.....	∞	∞	.....	101.5–2.5	turns brown.
12	.....	.....	.....	.....	155° <sup>750</sup>	.....
13	v. s. sol.	soluble	soluble	.....	67–8°	.....
14	.....	.....	.....	.....	153°	.....
15	.....	soluble	soluble	.....	110.5°	.....
16	.....	soluble	soluble	.....	57°	.....
17	v. v. s. sol.	soluble	.....	26°	228°	crystalline...
18	.....	.....	.....	21°	218°	.....
19	s. soluble	∞	∞	.....	122.4° C.	.....
20	.....	.....	.....	.....	165–8°	.....
21	insol.	soluble	soluble	.....	141.5–2.5 <sup>772</sup>	.....
22	44.6 c.c.	1250 c.c.	.....	.....	–50.2°	.....
23	0.245 <sup>20</sup>	soluble	.....	.....	141.6° C.	.....
24	0.272 <sup>20</sup>	.....	.....	.....	96.8° C.	.....
25	∞	∞	soluble	.....	188–9°	.....
26	33	∞	∞	.....	35°	.....
27	1.9 <sup>14</sup>	v. soluble	mod. sol.	199° dec.	.....	moncl. need..
28	5.0	v. soluble	v. soluble	153–4°	dec.	flat cryst./w.
29	.....	.....	.....	.....	169.8° C.	.....
30	.....	soluble	∞	.....	168–70°	colorless....
31	v. v. s. sol	v. soluble	v. soluble	71–2°	234–5°	fine needlesw.
32	mod.sol.hot	v. soluble	s. soluble	173°	dist.	thin need./..
33	mod. sol.	soluble	soluble *	256°	dec.	red need./al.
34	∞	v. soluble	v. soluble	47°	118° <sup>760</sup>	abs.
35	∞	v. soluble	v. soluble	–8°	208°	tb./et.;pris.w.
36	v. soluble	v. soluble	v. soluble	69.5–70°	186–8°	long need./et.
37	∞	∞	.....	.....	144°	.....
38	.....	1.37	v. soluble	148–9°	far > 360°	monoclinic...
39	∞	.....	.....	< –100°	116–6.2°	.....
40	∞	∞	∞	.....	113.5–4.5	colorless....

\* Soluble CS<sub>2</sub> and hot benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Pyridine purified (K.) . . .	$\text{CH} < (\text{CH}.\text{CH})_2 > \text{N} \dots$	79.08	0.972 <sup>11</sup>
2	penta carbonic acid. . .	$\text{C}_5\text{N}(\text{CO}_2\text{H})_5 + 2 \text{ or } 3\text{H}_2\text{O}$	299.08	.....
3	sulphonic acid (3) . . .	$\text{C}_5\text{H}_4\text{N}.\text{SO}_3\text{H} \dots$	159.14	.....
4	tricarbonic ac. (2, 3, 4)	$\text{C}_5\text{H}_2\text{N}.\text{(CO}_2\text{H)}_3 + 1\frac{1}{2}\text{H}_2\text{O}$	238.10	.....
5	Pyrocatechin. . . . .	$\text{o.C}_6\text{H}_4(\text{OH})_2 \dots$	110.05	1.344
6	Pyrocoll. . . . .	$\text{C}_4\text{H}_3\text{N} < (\text{CO})_2 > \text{NC}_4\text{H}_3 \dots$	186.13	.....
7	Pyrogallol. . . . .	$1: 2: 3\text{C}_6\text{H}_3(\text{OH})_3 \dots$	126.05	1.463 <sup>40</sup>
8	trimethyl ether. . . . .	$1: 2: 3\text{C}_6\text{H}_3(\text{OCH}_3)_3 \dots$	168.10	.....
9	Pyromeconic acid. . . . .	$\text{C}_5\text{H}_4\text{O}_3 \dots$	112.03	.....
10	Pyromellitic acid. . . . .	$1: 2: 4: 5\text{C}_6\text{H}_2(\text{CO}_2\text{H})_4 \dots$	254.05	.....
11	Pyromucic acid. . . . .	$\text{C}_4\text{H}_3\text{O}.\text{CO}_2\text{H} \dots$	112.03	.....
12	Pyron. . . . .	$\text{C}_5\text{H}_4\text{O}_2 \dots$	96.03	.....
13	Pyroracemic acid. . . . .	$\text{CH}_3\text{CO}.\text{CO}_2\text{H} \dots$	88.03	1.2649 <sup>26</sup>
14	Pyrotartaric acid. . . . .	$\text{CH}_3\text{CH}(\text{CO}_2\text{H})\text{CH}_2\text{CO}_2\text{H}$	132.06	1.4105
15	Pyrrol. . . . .	$< (\text{CH}.\text{CH})_2 > \text{NH} \dots$	67.08	0.9669 <sup>41</sup>
16	Pyrrolidine. . . . .	$\text{NH} < (\text{CH}_2.\text{CH}_2)_2 > \dots$	71.11	0.8520 <sup>22</sup>
17	Pyroline. . . . .	$\text{NH} < (\text{CH}_2.\text{CH})_2 > \dots$	69.10	.....
18	Pyrron. . . . .	$\text{CO}(\text{C}_4\text{H}_3\text{NH})_2 \dots$	164.10	.....
19	Pyruvic acid. . . . .	$\text{CH}_3.\text{CO}.\text{CO}_2\text{H} \dots$	88.03	1.288 <sup>18</sup>
20	Quercitin. . . . .	$\text{C}_{15}\text{H}_{10}\text{O}_7 + 3\text{H}_2\text{O} \dots$	302.08	.....
21	Quercite (d.) . . . . .	$\text{CH}_2 < [\text{CH}(\text{OH}).\text{CH}(\text{OH}).]_2 > \text{CHOH}$	164.10	1.5845 <sup>13</sup>
22	Quercitrine. . . . .	$\text{C}_{21}\text{H}_{22}\text{O}_{12} + 2\text{H}_2\text{O} \dots$	698.24	.....
23	Quinaldine. . . . .	$\text{py. } 2.\text{C}_9\text{H}_6\text{N}.\text{CH}_3 \dots$	143.11	1.0646 <sup>20</sup>
24	Quinic acid. . . . .	$(\text{OH})_4\text{C}_6\text{H}_7.\text{CO}_2\text{H} \dots$	192.10	1.637
25	" " . . . . .	$\text{CH}_3\text{O}.\text{C}_9\text{H}_5\text{N}.\text{CO}_2\text{H} \dots$	203.11	.....
26	Quinoline. . . . .	$\text{CH}.\text{CH} < \text{CH}.\text{CH} > \text{C}_2 < \text{CH}.\text{CH} > \text{N}.\text{CH} >$	129.10	1.0947 <sup>20</sup>
27	" (K.) . . . . .		129.10	1.093 <sup>11</sup>
28	Quinolinic acid. . . . .	$2: 3\text{C}_6\text{H}_3\text{N}(\text{CO}_2\text{H})_2 \dots$	167.05	.....
29	Quinone. . . . .	$\text{CO} < (\text{CH}.\text{CH})_2 > \text{CO} \dots$	108.03	1.307–1.318
30	Racemic acid. . . . .	$(\text{CO}_2\text{H}.\text{CH}(\text{OH}).)_2 + \text{H}_2\text{O}$	168.07	1.6873
31	Raffinose. . . . .	$\text{C}_{18}\text{H}_{32}\text{O}_{16} + 5\text{H}_2\text{O} \dots$	594.34	.....
32	Resorcine. . . . .	$\text{m.C}_6\text{H}_4(\text{OH})_2 \dots$	110.05	1.2717 <sup>15</sup>
33	dimethyl ether. . . . .	$\text{m.C}_6\text{H}_4(\text{OCH}_3)_2 \dots$	138.08	1.0803 <sup>1</sup>
34	Retene. . . . .	$\text{C}_{18}\text{H}_{18} \dots$	234.15	1.13
35	Rhamnite. . . . .	$\text{CH}_3[\text{CH}(\text{OH})]_4.\text{CH}_2\text{OH}$	166.12	.....
36	Rhamnose. . . . .	$\text{CH}_3[\text{CH}(\text{OH})]_4\text{CHO} + \text{H}_2\text{O}$	182.12	1.4708 <sup>42</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	∞	∞	∞	.....	113.5–8.0	colorless.....
2	v. v. sol.	.....	v. v. s. sol.	no m.p.	dec. 220°	imperfect reg.
3	v. soluble	v. s. sol.	insol.	.....	.....	need. or leaf..
4	1.2 <sup>15</sup>	mod. sol.	insol.	249–50°	.....	rhomb. tab..
5	v. soluble	v. soluble	v. soluble	104°	240–5°	lf./bz.; nd./w.
6	insol.	v. s. sol.	v. s. sol.	268–9°	sub.	moncl. tab...
7	44 <sup>13</sup>	soluble	soluble	132.5–3.5	293°	thin leaf.& ne.
8	.....	v. soluble	v. soluble	47°	235°	lg.need/dil.al.
9	soluble	soluble	s. soluble	117°	sub. 100°+	prisms.....
10	14.2 <sup>16</sup>	v. soluble	.....	264° anhy.	.....	tricl. tab./w..
11	3.6 <sup>15</sup> ; 25 <sup>100</sup>	v. soluble	v. soluble	132.6–4.3	sub. 100°+	moncl. prisms
12	v. v. s. sol.	.....	.....	32.5°	210–5°	small crystal
13	∞	∞	∞	13.6°	65° <sup>10</sup>	.....
14	66.7	v. soluble	v. soluble	112°	.....	triclin. prisms
15	insol.	v. soluble	v. soluble	.....	130–1°	.....
16	∞	.....	.....	.....	87.5–8.5°	.....
17	v. v. sol.	.....	.....	.....	90–1°	.....
18	v. v. s. sol.	v. soluble	v. soluble	160°	.....	trimet. need.
19	66.7	∞	∞	.....	165° dec.	/et.
20	0.35; 0.44 hot	.....	.....	abt. 250°	sub. part.	lem. yel. pow.
21	11 <sup>20</sup>	v. s. sol.	insol.	234° or 225	.....	moncl. prisms
22	{ 0.04 <sup>20</sup> 0.65 <sup>100</sup>	0.25	0.80	168° dec.	.....	yel.need. or lf.
23	.....	.....	.....	.....	246–7°	.....
24	40 <sub>9</sub>	s. soluble	insol.	161.6° C.	dec.	moncl. prisms
25	v. s. sol.	1.24 <sup>780</sup>	v. v. s. sol.	280° dec.	sub. part.	yellow prisms
26	.....	soluble	sol. CS <sub>2</sub>	–19.5°	240.4–1.3	.....
27	s. soluble	soluble	∞	.....	237–8°	usually yel...
28	0.55°	s. soluble	v. soluble	231°	dec.	moncl. prisms
29	s. sol. hot	v. soluble	v. soluble	115.7°	sub. need.	yel. moncl. pris./w.
30	20.6 <sup>20</sup>	2.04	.....	205–6°	.....	triclinic.....
31	14 <sup>20</sup>	0.1 <sup>20</sup> 90%	.....	118–9° anhy	dec. 130°	crystalline...
32	147.3 <sup>12.5</sup>	v. soluble	v. soluble	116°	276.5°	rhomb.tab./w.
33	v. s. sol.	soluble	soluble	< –17°	214–5°	vol.withste'm
34	.....	3	soluble	98.5°	390°	leaflets.....
35	v. soluble	v. soluble	v. s. sol.	121°	.....	triclin.pris./a.
36	50	s. soluble	.....	92–3°	.....	monoclin./w.

Number.	Name.	Formula.	Molecu- lar Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Ricinolic acid . . . . .	$\text{CH}_3(\text{CH}_2)_5\text{CH}(\text{OH}).$ $\text{CH}:\text{CH}_2$	298.28	.....
2	Rosaniline . . . . .	$\text{C}_{20}\text{H}_{21}\text{N}_3\text{O}$ . . . . .	319.29	.....
3	“ (p.) . . . . .	$(\text{NH}_2\text{C}_6\text{H}_4)_3\text{COH}$ . . . . .	305.18	.....
4	Rosinduline . . . . .	$\text{C}_{22}\text{H}_{15}\text{N}_3$ . . . . .	321.24	.....
5	Rosolic acid . . . . .	$\text{C}_{20}\text{H}_{16}\text{O}_3$ . . . . .	304.13	.....
6	Saccharic acid (d.) . . . . .	$\text{C}_4\text{H}_4(\text{OH})_4(\text{CO}_2\text{H})_2$ . . . . .	210.08	.....
7	Saccharine (d.) . . . . .	$(\text{C}_6\text{H}_{10}\text{O}_5)_x$ . . . . .	162.08	.....
8	Saccharin . . . . .	$\text{C}_6\text{H}_4<\overset{\text{CO}}{\underset{\text{SO}_2}{}}>\text{NH}$ . . . . .	183.14	.....
9	Salicin . . . . .	$\text{C}_{13}\text{H}_{18}\text{O}_7$ . . . . .	286.15	1.426–1.434
10	Salicylamide . . . . .	$\text{OH.C}_6\text{H}_4.\text{CONH}_2$ . . . . .	137.10	.....
11	Salicylic acid . . . . .	$\text{o.OH.C}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	138.05	.....
12	acetate . . . . .	$\text{C}_2\text{H}_3\text{O}_2.\text{C}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	180.06	.....
13	phenyl ether . . . . .	$\text{o.C}_6\text{H}_5\text{O.C}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	214.08	.....
14	aldehyde (K.) . . . . .	$\text{o.OH.C}_6\text{H}_4.\text{CHO}$ . . . . .	122.05	1.165 <sup>44</sup>
15	anhydride . . . . .	$\text{C}_{14}\text{H}_{10}\text{O}_5$ . . . . .	240.06	.....
16	Saligenin . . . . .	$\text{OH.C}_6\text{H}_4.\text{CH}_2\text{OH}$ . . . . .	124.06	1.1613 <sup>25</sup>
17	Salol see Phenyl salicylate . . . . .	.....	.....	.....
18	Santonin . . . . .	$\text{C}_{15}\text{H}_{18}\text{O}_3$ . . . . .	246.14	1.1866
19	Sarcolactic acid . . . . .	$\text{CH}_3.\text{CH}(\text{OH}).\text{CO}_2\text{H}$ . . . . .	90.05	.....
20	Sarcosine . . . . .	$\text{CH}_3\text{NH.CH}_2\text{CO}_2\text{H}$ . . . . .	89.10	.....
21	Skatol . . . . .	$\text{C}_9\text{H}_9\text{N}$ . . . . .	131.11	.....
22	Sebacic acid . . . . .	$\text{CO}_2\text{H}.\text{(CH}_2)_8\text{CO}_2\text{H}$ . . . . .	202.15	.....
23	Semicarbazid . . . . .	$\text{NH}_2.\text{CO.NH.NH}_2$ . . . . .	75.16	.....
24	Silicobenzoic acid . . . . .	$\text{C}_6\text{H}_5.\text{SiO}_2\text{H}$ . . . . .	138.45	.....
25	Silicon triethyl phenyl . . . . .	$\text{C}_6\text{H}_5\text{Si}(\text{C}_2\text{H}_5)_3$ . . . . .	192.56	0.9042 <sup>0</sup>
26	Silver fulminate . . . . .	$\text{C}_2\text{Ag}_2\text{N}_2\text{O}_2$ . . . . .	299.94	.....
27	Sodium ethyl . . . . .	$\text{NaC}_2\text{H}_5$ . . . . .	52.09	.....
28	glycerate . . . . .	$\text{NaC}_3\text{H}_7\text{O}_3$ . . . . .	114.11	.....
29	Sorbic acid . . . . .	$\text{CH}_3(\text{CH}:\text{CH})_2\text{CO}_2\text{H}$ . . . . .	112.06	.....
30	Sorbinose . . . . .	$\text{C}_6\text{H}_{12}\text{O}_6$ . . . . .	180.10	1.654 <sup>15</sup>
31	Sorbite . . . . .	$\text{C}_6\text{H}_{14}\text{O}_6 + \frac{1}{2}\text{H}_2\text{O}$ . . . . .	191.12	.....
32	Starch . . . . .	$(\text{C}_6\text{H}_{10}\text{O}_5)_x$ . . . . .	162.08	.....
33	Stearic acid . . . . .	$\text{CH}_3(\text{CH}_2)_{16}\text{CO}_2\text{H}$ . . . . .	284.30	0.8428 <sup>89</sup>
34	aldehyde . . . . .	$\text{CH}_3(\text{CH}_2)_{16}\text{CHO}$ . . . . .	268.30	.....
35	anhydride . . . . .	$(\text{C}_{18}\text{H}_{35}\text{O})_2\text{O}$ . . . . .	550.56	.....
36	Stearine . . . . .	$(\text{C}_{18}\text{H}_{35}\text{O}_2)_3\text{C}_3\text{H}_5$ . . . . .	890.88	0.9245 <sup>65</sup>
37	Stearolic acid . . . . .	$\text{C}_{17}\text{H}_{31}\text{CO}_2\text{H}$ . . . . .	280.26	.....



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	∞	∞	16-7°	250° <sup>15</sup>	cryst. mass..
2	s. soluble	soluble	insol.	.....	dec.	need. or tab..
3	insol.	soluble	.....	.....	.....	red. leaflets..
4	insol.	v. soluble	v. soluble	198-9°	.....	brown lf./et..
5	v. s. sol.	v. sol. hot	mod. sol.	abt. 270°	dec.	red leaflets ..
6	v. soluble	v. soluble	s. soluble	.....	.....	.....
7	13 <sup>15</sup>	.....	.....	160-1°	volatile	large rhb.pris.
8	0.4305 <sup>25</sup>	3.12/90%	*	220° dec.	sub.	crys./acetone
9	3.34 <sup>15</sup> ; 85° <sup>5</sup>	sol.	insol.	201°	230-40°	rhomb. leaf or prisms
10	s. soluble	.....	.....	138°	270° dec.	leaflets. ....
11	0.225 <sup>15</sup>	49.63 <sup>15</sup>	50.47 <sup>15</sup>	158° C.	sub.	fine need./w..
12	v. s. sol.	v. soluble	v. soluble	118-8.5°	dec. > 140°	fine need./w.
13	v. v. s. sol.	v. soluble	v. soluble	113°	355° dec.	leaf./dil. al. .
14	s. soluble	soluble	∞	-20°	196-7°	bright yellow
15	insol.	v. soluble	v. soluble	200-20°	dec.	yel. amor.
16	6.7 <sup>22</sup>	v. soluble	v. soluble	86°	sub. 100°+	rhomb. tab...
17	.....	.....	.....	.....	.....	.....
18	0.02 <sup>17</sup>	2.0 <sup>22</sup>	1.3 <sup>170</sup>	169-70°	sub. dec.	trimet. tab. or prisms
19	∞	∞	∞	.....	.....	syrup.....
20	v. soluble	s. soluble	.....	210-5°	.....	rhombic.....
21	s. soluble	soluble	sol. lig.	95°	265-6° <sup>755</sup>	glit. leaf./lig.
22	0.10 <sup>20</sup> ; 0.42° <sup>5</sup>	v. sol.	v. soluble	133-3.5°	294.5° <sup>100</sup>	feath'y cryst.
23	v. soluble	v. sol. bz.	v. sol. chlo.	96°	.....	pris./abs. al..
24	insol.	sol. KOH	v. soluble	92°	.....	glassy/et.....
25	insol.	.....	soluble	.....	230°	.....
26	2.75 <sup>100</sup>	v. sol. NH <sub>3</sub>	.....	exp.	.....	small need...
27	.....	.....	.....	.....	.....	.....
28	decom.	soluble	.....	.....	.....	white powd..
29	v. s. sol.	v. soluble	v. soluble	134.5°	228° dec.	needles/w...
30	200	s. soluble	.....	164°	.....	rhombic.....
31	soluble	v. s. sol.	.....	110-1°	.....	crystalline...
32	insol.	insol.	insol.	no m.p.	.....	amorphous ..
33	insol.	0.15°	soluble	69.32°	291° <sup>100</sup>	leaflets. ....
34	.....	.....	.....	63.5°	212-3° <sup>22</sup>	scales/ether..
35	.....	.....	.....	71-7°	.....	.....
36	insol.	v. s. sol.	soluble	55-71.5°	.....	crystalline...
37	insol.	s. soluble	v. soluble	48°	260°	long pris./al..

\* Sol. acetone, benz., and hot xylene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1. (A).
1	Stearone.....	$(C_{17}H_{35})_2CO$ .....	506.56	0.7979 <sup>2</sup>
2	Stilbene.....	$C_6H_5.CH:CH.C_6H_5$ .....	180.10	0.9707 <sup>119</sup>
3	Styrone.....	$C_6H_5CH:CH_2$ .....	104.06	0.925 <sup>0</sup>
4	Suberic acid.....	$CO_2H(CH_2)_6CO_2H$ .....	174.12	.....
5	Suberone.....	$(CH_2)_6:CO$ .....	112.10	0.969 <sup>0</sup>
6	Suberyl alcohol.....	$(CH_2)_6:CHOH$ .....	114.12	0.9595 <sup>15</sup>
7	Succinamide.....	$NH_2CO.(CH_2)_2.CONH_2$ .....	116.14	.....
8	Succinic acid.....	$CO_2H.(CH_2)_2.CO_2H$ .....	118.05	1.552
9	anhydride.....	$<(CH_2.CO)_2>O$ .....	100.03	1.1036 <sup>20</sup>
10	Succinimide.....	$<(CH_2.CO)_2>NH + H_2O$ .....	117.10	.....
11	Succinyl chloride.....	$ClCO(CH_2)_2COCl$ .....	154.93	1.4123 <sup>16</sup>
12	Sugar (cane).....	$C_{12}H_{22}O_{11}$ .....	342.18	1.588 <sup>20</sup>
13	Sulphamine benzoic ac. (o.)	$NH_2SO_2.C_6H_4.CO_2H$ .....	201.16	.....
14	“ “ “ (m.)	$NH_2SO_2.C_6H_4.CO_2H$ .....	201.16	.....
15	“ “ “ (p.)	$NH_2SO_2.C_6H_4.CO_2H$ .....	201.16	.....
16	Sulphanilic acid (p.).....	$NH_2.C_6H_4.SO_3H + 2H_2O$	209.19	.....
17	Sulphoacetic acid.....	$SO_3H.CH_2.CO_2H + 1\frac{1}{2}H_2O$	167.12	.....
18	Sulphobenzoic acid (o.) ..	$CO_2H.C_6H_4.SO_3H + 3H_2O$	256.12	.....
19	“ “ (m.).....	$CO_2H.C_6H_4.SO_3H$ .....	202.16	.....
20	“ “ (p.).....	$CO_2H.C_6H_4.SO_3H$ .....	202.16	.....
21	Sulphocyanic acid.....	$CNSH$ .....	59.11	.....
22	Sulphonal.....	$(CH_3)_2C(SO_2C_2H_5)_2$ .....	228.25	.....
23	Sylvestrene (d.).....	$C_{10}H_{16}$ .....	136.12	0.8510 <sup>16</sup>
24	Talomucic acid (d. or l.)	$C_6H_{10}O_8$ .....	210.08	.....
25	Tannin.....	$C_{14}H_{10}O_9$ .....	322.08	.....
26	Tartaric acid (i.).....	$CO_2H.[CH(OH)]_2CO_2H$ + $H_2O$	168.07	1.666
27	“ (d.).....	$CO_2H.[CH(OH)]_2CO_2H$ ..	150.05	1.764
28	“ (l.).....	$CO_2H.[CH(OH)]_2CO_2H$	150.05	1.764
29	amide (d.).....	$NH_2CO.[CH(OH)]_2$ $CONH_2$	148.14	.....
30	Tartronic acid .....	$OHCH(CO_2H)_2 + \frac{1}{2}H_2O$	120.03	.....
31	Taurine.....	$NH_2.CH_2.CH_2.SO_3H$ .....	125.16	.....
32	Taurocholic acid.....	$C_{26}H_{45}NSO_7$ .....	515.46	.....
33	Teraconic acid.....	$(CH_3)_2C:C(CO_2H):$ $CH_2.CO_2H$ .	158.08	.....
34	Terebic acid.....	$C_7H_{10}O_4$ .....	158.08	.....
35	Terephthalic acid (p.) ..	$C_6H_4(CO_2H)_2$ .....	166.05	.....
36	aldehyde (p.).....	$C_6H_4(CHO)_2$ .....	134.05	.....
37	nitrile (p.).....	$C_6H_4(CN)_2$ .....	128.11	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	s. sol. hot	s. sol. hot	87.8°	.....	leaflets.....
2	.....	1.13, 90%	v. soluble	124-5°	306-7°	monoclinic...
3	insol.	∞	∞	.....	146.2°	.....
4	0.142 <sup>15</sup>	.....	0.809	140°	abt. 300°	need. or tabn.
5	.....	.....	.....	.....	179-81° C.	oil.....
6	.....	.....	.....	.....	184-5° C.	.....
7	0.45 <sup>15</sup>	insol.	insol.	242-3°	.....	needles.....
8	5.8 <sup>20</sup> ; 28.1 <sup>65</sup>	9.99	1.19 <sup>15</sup>	185°	235°	monoclinic...
9	insol.	soluble	v. s. sol.	119.6°	261°	trimetric/al..
10	v. soluble	mod. sol.	.....	125-6°	287-8°	octah./acet..
11	.....	.....	.....	.....	190-2° C.	.....
12	198.6 <sup>12</sup>	0.4	.....	180° dec.	.....	monoclinic...
13	v. soluble	v. soluble	v. soluble	165-7°	.....	lrg.transp.pri.
14	v. s. sol.	v. soluble	s. soluble	246-7°	.....	scales.....
15	v. v. s. sol.	v. soluble	.....	dec. 280°	.....	flat pris./w..
16	0.592°	.....	.....	chars.	.....	rhomb. tab..
17	soluble	.....	.....	68-72°	.....	deliq. needle
18	50	v. s. sol.	insol.	130° anhy.	.....	large trimet..
19	deliq.	.....	.....	.....	.....	.....
20	.....	.....	.....	abt. 200°	.....	needles.....
21	v. soluble	.....	.....	-12.5°	.....	.....
22	2 <sup>15</sup> ; 6.7 <sup>100</sup>	50/abs. <sup>78</sup>	0.75 <sup>15</sup>	125-6°	300° dec.	thick prisms.
23	.....	.....	.....	.....	176-7°	.....[acetone
24	v. soluble	v. sol. hot	.....	158° dec.	.....	v. sm. leaf.
25	v. soluble	s. soluble	insol.	dec. 210°	.....	amorph. pow.
26	125 <sup>15</sup>	.....	.....	140-3° anh.	.....	rectang. tab.
27	139	v. soluble	insol.	168-70°	.....	monoclinic ..
28	136.6	v. soluble	insol.	170°	.....	monoclinic ..
29	.....	soluble	.....	.....	.....	rhombic.....
30	v. soluble	v. soluble	s. soluble	185-7° dec.	sub. 110° +	prisms/et....
31	6.5 <sup>12</sup>	insol.	insol.	88°	dec.	tetrag. need..
32	soluble	v. soluble	s. soluble	.....	.....	deliq. needles
33	v. soluble	v. soluble	v. soluble	162° dec.	→anhyd.	triclinic.....
34	s. soluble	soluble	soluble	174°	dec.	mono. /al. ..
35	0.0016	v. v. s. sol.	insol.	no m.p.	sub.	needles .....
36	1.5 <sup>100</sup>	v. soluble	v. s. sol.	116°	245-8°	fine need./w.
37	.....	s. soluble	s. sol. hot	222°	.....	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1. (A).
1	Terpenol . . . . .	$C_{10}H_{18}O$ . . . . .	154.15	.....
2	Terpentine (pinene) . . . . .	$C_{10}H_{16}$ . . . . .	136.13	0.8587 <sup>20</sup>
3	Terpinene . . . . .	$C_{10}H_{16}$ . . . . .	136.13	0.855
4	Terpineol . . . . .	$C_{10}H_{16} \cdot H_2O$ . . . . .	154.15	0.9357 <sup>20</sup>
5	Terpinolene . . . . .	$C_{10}H_{16}$ . . . . .	136.13	.....
6	Tetrabrom-benzene (s.) . . . . .	1: 2: 4: 5 $C_6H_2Br_4$ . . . . .	393.87	.....
7	“ (as.) . . . . .	1: 3: 4: 5 $C_6H_2Br_4$ . . . . .	393.87	.....
8	-ethane (s.) . . . . .	$CHBr_2 \cdot CHBr_2$ . . . . .	345.86	2.9716 <sup>47</sup>
9	-ethylene . . . . .	$CBr_2 \cdot CBr_2$ . . . . .	343.84	.....
10	Tetrachlor-aniline . . . . .	2: 3: 4: 5 $NH_2 \cdot C_6HCl_4$ . . . . .	230.87	.....
11	“ . . . . .	2: 3: 5: 6 $NH_2 \cdot C_6HCl_4$ . . . . .	230.87	.....
12	-benzene (s.) . . . . .	1: 2: 4: 5 $CH_2Cl_4$ . . . . .	215.82	1.7344 <sup>10</sup>
13	“ (as.) . . . . .	1: 2: 3: 5 $CH_2Cl_4$ . . . . .	215.82	.....
14	“ (v.) . . . . .	1: 2: 3: 4 $CH_2Cl_4$ . . . . .	215.82	.....
15	-ether . . . . .	$CCl_3 \cdot CHCl \cdot O \cdot C_2H_5$ . . . . .	211.85	1.4182 <sup>15</sup>
16	-ethylene . . . . .	$CCl_2 \cdot CCl_2$ . . . . .	165.80	1.6312 <sup>9.4</sup> <sub>4</sub>
17	-hydroquinone . . . . .	$(OH)_2C_6Cl_4$ . . . . .	247.82	.....
18	Tetracosane (n.) . . . . .	$CH_3(CH_2)_{22} \cdot CH_3$ . . . . .	338.40	0.7786 <sup>47</sup>
19	Tetradecane (n.) . . . . .	$CH_3(CH_2)_{12} \cdot CH_3$ . . . . .	198.24	0.7645 <sup>49</sup>
20	Tetradecylene (n.) . . . . .	$CH_3(CH_2)_{11}CH:CH_2$ . . . . .	196.24	0.7745 <sup>48</sup>
21	Tetraethyl-ammonium hy. . . . .	$(C_2H_5)_4NOH$ . . . . .	147.21	.....
22	-benzene (s.) . . . . .	1: 2: 4: 5 $C_6H_2(C_2H_5)_4$ . . . . .	190.18	.....
23	-silicon . . . . .	$(C_2H_5)_4Si$ . . . . .	144.56	0.7682 <sup>47</sup>
24	Tetrahydro-benzaldehyde . . . . .	$H_4C_6H_5CHO$ . . . . .	110.08	1.0091 <sup>9</sup>
25	-naphthaline (α) . . . . .	$C_{10}H_{12}$ . . . . .	132.10	0.934 <sup>38</sup>
26	-phthalic acid (Δ') . . . . .	$C_6H_8(CO_2H)_2$ . . . . .	170.08	.....
27	-quinoline . . . . .	$C_9H_{11}N$ . . . . .	133.13	1.0627 <sup>15</sup>
28	-toluene . . . . .	$CH_3 \cdot C_9H_9$ . . . . .	96.10	0.797 <sup>18</sup>
29	-m-xylene . . . . .	$C_6H_8(CH_3)_2$ . . . . .	110.12	0.794 <sup>14</sup>
30	Tetrahydroxy-benzene (s.) . . . . .	1: 2: 4: 5 $C_6H_2(OH)_4$ . . . . .	142.05	.....
31	-benzoic acid . . . . .	2: 3: 4: 5 $(OH)_4C_6HCO_2H$ . . . . .	186.05	.....
32	-quinone . . . . .	$O_2C_6(OH)_4$ . . . . .	172.03	.....
33	Tetraiodo-ethylene . . . . .	$Cl_2 \cdot Cl_2$ . . . . .	531.88	.....
34	-pyrrol . . . . .	$C_4I_4NH$ . . . . .	570.89	.....
35	Tetramethyl -ammonium hydroxide . . . . .	$(CH_3)_4NOH$ . . . . .	91.15	.....
36	-anthracene . . . . .	$C_{18}H_{18}$ . . . . .	234.15	.....
37	-benzene (s.) . . . . .	1: 2: 4: 5 $C_6H_2(CH_3)_4$ . . . . .	134.12	.....
38	-benzene (as.) . . . . .	1: 2: 3: 5 $C_6H_2(CH_3)_4$ . . . . .	134.12	0.8961 <sup>4</sup>
39	“ (v.) . . . . .	1: 2: 3: 4 $C_6H_2(CH_3)_4$ . . . . .	134.12	0.8816 <sup>9</sup>
40	-diamino-benzophenone . . . . .	$CO[C_6H_4N(CH_3)_2]_2$ . . . . .	268.24	.....
41	“ -diphenyl-amine . . . . .	$NH[C_6H_4N(CH_3)_2]_2$ . . . . .	255.29	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	.....	69–70°	volatile	thick pris./et
2	v. s. sol.	soluble	∞	.....	156°	oil. ....
3	.....	.....	.....	.....	179–82°	.....
4	insol.	v. soluble	v. soluble	35°	218°	{ transp. cryst. /et. ....
5	.....	.....	.....	.....	183–5° C.	
6	.....	.....	.....	174–5°	.....	
7	.....	v. v. s. sol.	v. soluble	98.5°	329°	long need./al.
8	.....	.....	.....	< –20°	137° <sup>36</sup>	fine needles. .
9	.....	.....	.....	53°	.....	tablets. ....
10	v. sol. bz.	v. soluble	v. soluble	118°	.....	.....
11	.....	.....	.....	90°	.....	.....
12	mod. sol. CS <sub>2</sub>	s. sol. hot	mod. sol.	137–8°	243–6° C.	moncl./CS <sub>2</sub> ...
13	.....	v. s. sol.	.....	50–1°	246°	needles. ....
14	v. sol. CS <sub>2</sub>	s. soluble	v. soluble	45–6°	254°	needles. ....
15	.....	.....	.....	.....	189.7° <sup>750</sup>	.....
16	.....	.....	.....	.....	121°	.....
17	insol.	v. soluble	v. soluble	232°	sub. dec.	{ moncl. pris./ /bz.
18	.....	.....	.....	51.1°	243° <sup>15</sup>	
19	.....	.....	.....	5.5°	252.5° C.	
20	.....	.....	.....	–12°	240–6°	.....
21	v. deliq.	soluble	.....	dec. 190°	dec.	needles. ....
22	.....	.....	.....	13°	250° C.	.....
23	insol.	.....	.....	.....	153°	.....
24	insol.	.....	.....	.....	186–8°	.....
25	.....	.....	.....	.....	abt. 205°	.....
26	v. soluble	.....	.....	120° dec.	.....	leaflets/w....
27	.....	.....	.....	abt. 20°	251°	needles. ....
28	.....	.....	.....	.....	105°	.....
29	.....	.....	.....	.....	119°	.....
30	mod. sol.	mod. sol.	v. soluble	215–20°	.....	glit. leaf./ace.
31	.....	insol. lig.	.....	147–8°	.....	cryst./acet. e.
32	s. soluble	v. soluble	s. soluble	no m. p.	.....	bluish cryst..
33	.....	.....	soluble	.....	dec. 165°	prisms ....
34	0.02	5.8 <sup>15</sup> , 90%	50; sol. bz.	no m.p.	dec. 140–50	yel. n./dil. al.
35	v. soluble	.....	.....	.....	dec.	deliq. cryst..
36	.....	.....	.....	abt. 280° d.	.....	.....
37	v. sol. bz.	v. soluble	v. soluble	79–80°	193–5°	moncl. leaf...
38	.....	.....	.....	.....	195–7°	.....
39	.....	.....	.....	–4°	204° C.	.....
40	.....	v. soluble	v. soluble	174° C.	> 360° dec.	glit leaflets..
41	.....	soluble	.....	119°	.....	quad.tab./CS

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Tetramethyl-diamino</b>			
1	-diphenyl-methane (p.)	$H_2C.[C_6H_4N(CH_3)_2]_2$	254.26	.....
2	-silicon. ....	$(CH_3)_4Si$	88.50	< 1.
3	-triphenyl-methane ...	$C_6H_5CH[C_6H_4N(CH_3)_2]_2$	330.29	.....
4	<b>Tetramethylene-diamine.</b>	$C_4H_{12}N_2$	88.18	.....
5	-tetra carbonic acid ...	1, 1, 2, 2 $C_4H_4(CO_2H)_4$	232.06	.....
6	<b>Tetranitro-methane.</b>	$C(NO_2)_4$	196.16	.....
7	-naphthaline (α).....	$C_{10}H_4(NO_2)_4$	308.19	.....
8	“ (β).....	$C_{10}H_4(NO_2)_4$	308.19	.....
9	<b>Tetraphenyl-ethane (s.)</b>	$(C_6H_5)_2CH.CH(C_6H_5)_2$	334.18	1.182
10	-ethylene.....	$(C_6H_5)_2C:C(C_6H_5)_2$	332.16	.....
11	<b>Tetrolic acid.</b>	$CH_3.C:C.CO_2H$	84.03	.....
12	<b>Thallin.</b>	$C_9H_{10}NO.CH_3$	149.13	.....
13	<b>Theïne</b> (see Caffeine).....			.....
14	<b>Theobromine.</b>	$C_7H_8N_4O_2$	180.22	.....
15	<b>Thiazol.</b>	1: 3N(CH) <sub>3</sub> S	85.13	1.1998 <sup>17</sup>
16	<b>Thio-acet-amide.</b>	$CH_3.CS.NH_2$	75.14	.....
17	“ -anilid .....	$CH_3.CS.NHC_6H_5$	151.17	.....
18	-acetic acid. ....	$CH_3.COSH$	76.09	1.074 <sup>10</sup>
19	-benzoic acid.....	$C_6H_5.COSH$	138.10	.....
20	-carbamic acid.....	$NH_2.CS.SH$	93.19	.....
21	-carbanilid.....	$CS(NHC_6H_5)_2$	228.24	1.3205 <sup>4</sup>
22	-o-cresole. ....	$CH_3.C_6H_4.SH$	124.12	.....
23	-m. “ .....	$CH_3.C_6H_4.SH$	124.12	.....
24	-p. “ .....	$CH_3.C_6H_4.SH$	124.12	.....
25	-cyanuric acid.....	$(CNSH)_3$	177.33	.....
26	-diphenyl amine.....	$S < (C_6H_4)_2 > NH$	199.17	.....
27	-glycerine.....	$(OH)_2C_3H_5.SH$	108.12	1.295 <sup>14</sup>
28	-hydroquinone (p.) ...	$C_6H_4(SH)_2$	142.17	.....
29	-naphthen.....	$C_8H_6S$	134.11	.....
30	-α naphthol.....	$C_{10}H_7SH$	160.12	1.1549 <sup>2</sup>
31	-β- “ .....	$C_{10}H_7SH$	160.12	.....
32	-oxamide.....	$NH_2SC.CSNH_2$	120.23	.....
33	-phene.....	$< (CH.CH)_2 > S$	84.09	1.0705 <sup>2</sup>
34	“ (K.) .....	$< (CH.CH)_2 > S$	84.09	1.06 <sup>11</sup>
35	alcohol. ....	$C_4H_3S.CH_2OH$	114.11	.....
36	aldehyde.....	$C_4H_3S.CHO$	112.09	1.215 <sup>21</sup>
37	carbonic acid (α)	$C_4H_3S.CO_2H$	128.09	.....
38	“ (β)	$C_4H_3S.CO_2H$	128.09	.....
39	-phenol.....	$C_6H_5.SH$	110.11	1.0782 <sup>14</sup>
40	-phosgene.....	$CSCl_2$	114.96	1.5085 <sup>15</sup>
41	-resorcine.....	$C_6H_4(SH)_2$	142.17	.....
42	-semicarbizid.....	$NH_2.CS.NH.NH_2$	91.22	.....

\* The crystals from benzene melt at 102°,

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	.....	90-1°	dist.	leaflets/al....
2	insol.	.....	.....	.....	30-1°	.....
3	insol.	mod. sol.	v. soluble	*	dist.	tric.n/bz.or al.
4	v. soluble	.....	.....	27-8°	158-60°	leaflets. ....
5	v. soluble	v. soluble	v. soluble	198-203 de.	.....	crystalline...
6	insol.	soluble	soluble	13°	126°	white cryst..
7	v. v. s. sol.	v. v. s. sol.	v. v. s. sol.	259°	exp.	rhomb./chlo.
8	.....	.....	.....	200°	exp.	long thin n./a
9	14 bz.	s. soluble	sol. acet.	209°	379-83° C.	trimet. n./ch.
10	.....	v. s. sol.	v. s. sol.	221°	415-25°	triclinic. ....
11	v. soluble	v. soluble	v. soluble	76°	203°	tablets. ....
12	v. s. sol.	v. soluble	v. soluble	42-3°	283° <sup>735</sup>	thick trim. pr
13	.....	.....	.....	.....	.....	.....
14	0.06 <sup>17</sup>	0.007 <sup>20</sup> abs.	0.004 <sup>20</sup>	329-30°	sub. 290° +	rhombic mic.
15	.....	.....	.....	.....	116.8° C.	.....
16	v. soluble	soluble	.....	107.5-8.5	.....	moncl.tab./et.
17	insol.	sol. KOH	.....	75°	dec.	needles/w...
18	∞	∞	∞	< -17°	93°	.....
19	insol.	∞	∞	24°	.....	oily. ....
20	v. soluble	v. soluble	v. soluble	.....	.....	needles. ....
21	insol.	v. soluble	v. soluble	153°	dec.	trimet. tab...
22	insol.	soluble	.....	15°	193°	leaflets. ....
23	.....	.....	.....	< -20.	195-200°	.....
24	insol.	soluble	v. soluble	43°	190.2-1.7	leaflets/et...
25	v. sol. hot	v. s. sol.	v. s. sol.	no m.p.	dec. 200°	yel. needles..
26	v. sol. bz.	s. soluble	mod. sol.	180°	371° dec.	yel. leaf./al..
27	s. soluble	∞	insol.	.....	.....	thick liquid..
28	.....	.....	.....	98°	.....	hexag. leaf...
29	.....	.....	.....	30-1°	.....	leaflets. ....
30	insol.	v. soluble	v. soluble	.....	285° dec.	.....
31	.....	.....	.....	81°	286°	glit. scales/al.
32	s. soluble	sol. hot	s. soluble	dec.	.....	yel. red. cryst
33	insol.	soluble	sol. H <sub>2</sub> SO <sub>4</sub>	.....	84° C.	.....
34	insol.	soluble	∞	.....	83.5-4.5°	colorless ..
35	.....	.....	.....	.....	207° C.	.....
36	.....	.....	.....	.....	198° C.	oily. ....
37	0.057 <sup>21</sup>	v. soluble	v. soluble	126.5°	260° C. dec	flat need./w..
38	0.443 <sup>17</sup>	.....	.....	136°	with steam	needles/w....
39	insol.	v. soluble	v. soluble	.....	172.5°	.....
40	.....	.....	.....	.....	73.5°	red. ....
41	.....	.....	.....	27°	243°	crystalline...
42	soluble	.....	.....	181-3°	.....	long need./w

while those from alcohol melt at 93-94°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Thio-urea . . . . .	$\text{NH}_2.\text{CS}.\text{NH}_2$ . . . . .	76.17	1.406–1.450
2	Thymol (3: 2: 1) . . . . .	$(\text{CH}_3)_2\text{CH}.\text{C}_6\text{H}_3(\text{CH}_3)\text{OH}$ .	150.12	0.9941 <sup>u</sup>
3	Thymo-quinone . . . . .	$\text{C}_{10}\text{H}_{12}\text{O}_2$ . . . . .	164.10	.....
4	Tiglic acid . . . . .	$\text{CH}_3.\text{CH}:\text{C}(\text{CH}_3).\text{CO}_2\text{H}$ .	100.06	.....
5	aldehyde . . . . .	$\text{CH}_3.\text{CH}:\text{C}(\text{CH}_3).\text{CHO}$ . .	84.06	0.871 <sup>15</sup>
6	Tin diethyl . . . . .	$\text{Sn}(\text{C}_2\text{H}_5)_2$ . . . . .	177.08	1.654
7	tetra-ethyl . . . . .	$\text{Sn}(\text{C}_2\text{H}_5)_4$ . . . . .	235.16	1.187 <sup>23</sup>
8	“ -methyl . . . . .	$\text{Sn}(\text{CH}_3)_4$ . . . . .	179.10	1.3138 <sup>o</sup>
9	triethyl . . . . .	$(\text{C}_2\text{H}_5)_3\text{Sn}.\text{Sn}(\text{C}_2\text{H}_5)_3$ . . .	412.24	1.4115 <sup>o</sup>
10	Tolane . . . . .	$\text{C}_6\text{H}_5.\text{C}:\text{C}.\text{C}_6\text{H}_5$ . . . . .	178.08	.....
11	Toluene . . . . .	$\text{CH}_3.\text{C}_6\text{H}_5$ . . . . .	92.06	0.866 <sup>29</sup>
12	“ (K.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_5$ . . . . .	92.06	0.8625 <sup>28</sup>
13	sulphone-amide (o.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{SO}_2\text{NH}_2$ . . . . .	171.17	.....
14	“ “ (p.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{SO}_2\text{NH}_2$ . . . . .	171.17	.....
15	“ chloride (o.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{SO}_2\text{Cl}$ . . . . .	190.57	.....
16	“ “ (p.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{SO}_2\text{Cl}$ . . . . .	190.57	.....
17	sulphonic acid (o.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{SO}_3\text{H} + 2\text{H}_2\text{O}$ .	208.16	.....
18	“ (m.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{SO}_3\text{H} + \text{H}_2\text{O}$ . .	190.14	.....
19	“ (p.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{SO}_3\text{H} + 4\text{H}_2\text{O}$ .	244.17	.....
20	Toluic acid (o.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	136.06	1.0621 <sup>115</sup>
21	“ (m.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	136.06	1.0543 <sup>142</sup>
22	“ (p.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	136.06	.....
23	amide (o.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CONH}_2$ . . . . .	135.11	.....
24	“ (m.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CONH}_2$ . . . . .	135.11	.....
25	“ (p.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CONH}_2$ . . . . .	135.11	.....
26	anhydride (o.) . . . . .	$(\text{CH}_3.\text{C}_6\text{H}_4.\text{CO})_2\text{O}$ . . . . .	254.11	.....
27	Toluidine (o.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{NH}_2$ . . . . .	107.11	1.003 <sup>20</sup>
28	“ (K.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{NH}_2$ . . . . .	107.11	0.996 <sup>28</sup>
29	“ (m.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{NH}_2$ . . . . .	107.11	0.998 <sup>25</sup>
30	“ (p.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{NH}_2$ . . . . .	107.11	1.046
31	Tolyl carbinol (o.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CH}_2\text{OH}$ . . . . .	122.08	1.023 <sup>40</sup>
32	“ (m.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CH}_2\text{OH}$ . . . . .	122.08	1.036
33	“ (p.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CH}_2\text{OH}$ . . . . .	122.08	.....
34	chloride (o.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CH}_2\text{Cl}$ . . . . .	140.52	.....
35	“ (m.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CH}_2\text{Cl}$ . . . . .	140.52	.....
36	“ (p.) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_4.\text{CH}_2\text{Cl}$ . . . . .	140.52	.....
37	Tolylene alcohol (o.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{OH})_2$ . . . . .	138.08	.....
38	“ (m.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{OH})_2$ . . . . .	138.08	1.161 <sup>18</sup>
39	“ (p.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{OH})_2$ . . . . .	138.08	.....
40	chloride (o.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{Cl})_2$ . . . . .	174.96	1.393 <sup>o</sup>
41	“ (m.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{Cl})_2$ . . . . .	174.96	1.302 <sup>20</sup>
42	“ (p.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{Cl})_2$ . . . . .	174.96	1.417 <sup>o</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	9	v. s. sol.	v. s. sol.	180°	.....	thick rhb. pri.
2	0.083 <sup>15</sup>	v. soluble	v. soluble	49.6°-51.5	231.8°	hexag. or mo.
3	v. s. sol.	v. soluble	v. soluble	45.5°	232°	or. yel. tab...
4	s. soluble	soluble	soluble	64.5°	198.5°	triclinic. ....
5	2	∞	∞	.....	116.6° C.	.....
6	insol.	soluble	.....	.....	dec.	oily .....
7	insol.	.....	.....	.....	181°	.....
8	.....	.....	.....	.....	78°	.....
9	insol.	insol.	.....	.....	256-70° de.	.....
10	.....	v. sol. hot	v. soluble	60°	275-300°	leaf. or pris/ al.
11	insol.	s. soluble	soluble	.....	111.0°	.....
12	v. v. s. sol.	soluble	∞	-93.2°	110-1°	colorless. ....
13	0.105 <sup>9</sup>	3.6 <sup>5</sup>	.....	155°	.....	octahedral...
14	0.19	7.5 <sup>5</sup>	.....	137°	.....	leaflets. ....
15	insol.	.....	.....	.....	.....	oily.....
16	insol.	.....	soluble	69°	145-6° <sup>15</sup>	rhombic.....
17	.....	.....	.....	.....	.....	crystalline...
18	.....	.....	.....	.....	.....	needles.....
19	.....	.....	.....	92°	.....	leaf. or pris..
20	s. soluble	v. soluble	.....	102°	259°	long need./w.
21	1.7 <sup>100</sup>	v. soluble	v. soluble	110.5°	263°	prisms/w....
22	s. soluble	v. soluble	v. soluble	176-7°	275° C.	needles.....
23	soluble	v. soluble	v. soluble	142.8° C.	.....	.....
24	s. soluble	.....	.....	94.0° C.	.....	.....
25	s. soluble	v. soluble	s. soluble	160.8° C.	.....	need. or tab./
26	.....	.....	.....	36-7°	abt. 325°	crys./et. or bz.
27	.....	.....	.....	< -20°	197°	.....
28	s. soluble	soluble	∞	.....	199-200°	usually yel...
29	.....	.....	.....	< -13°	202-5°	.....
30	0.35 <sup>11</sup>	.....	.....	45°	198°	leaflets/ al...
31	1 <sup>20</sup> ; 115 <sup>100</sup>	v. soluble	v. soluble	34°	223° C. <sup>750</sup>	needles.....
32	5	.....	.....	< -20°	217°	.....
33	v. s. sol.	v. soluble	v. soluble	58.5-9.5°	217°	needles.....
34	.....	.....	.....	.....	197-9°	.....
35	.....	.....	.....	.....	195-6°	.....
36	.....	.....	.....	.....	192°	.....
37	v. soluble	v. soluble	25 <sup>18</sup>	64.2-4.8°	.....	tablets/et....
38	v. soluble	.....	soluble	46-7°	.....	crystalline ..
39	v. soluble	v. soluble	v. soluble	112-3°	.....	needles.....
40	v. sol. chlo.	v. soluble	v. soluble	54.6-4.8°	239-41°	crystalline ..
41	.....	.....	.....	34.2°	250-5°	crystalline ..
42	.....	.....	.....	100°	240-50 dec.	rhb. tab./ al.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Tricetamide. . . . .	$(\text{CH}_3\text{CO})_3\text{N}$ . . . . .	143.11	.....
2	Triacetin . . . . .	$(\text{C}_2\text{H}_3\text{O}_2)_3\text{C}_3\text{H}_5$ . . . . .	218.12	1.1606 <sup>44</sup>
3	" (K.) . . . . .	$(\text{C}_2\text{H}_3\text{O}_2)_3\text{C}_3\text{H}_5$ . . . . .	218.12	1.159 <sup>44</sup>
4	Triamino-azo-benzene (3, 2', 4')	$\text{NH}_2\text{C}_6\text{H}_4\text{N}_2\text{C}_6\text{H}_3(\text{NH}_2)_2$	227.11	.....
5	-benzene (1, 2, 3). . . . .	$\text{C}_6\text{H}_3(\text{NH}_2)_3$ . . . . .	123.19	.....
6	" (1, 2, 4). . . . .	$\text{C}_6\text{H}_3(\text{NH}_2)_3$ . . . . .	123.19	.....
7	-phenol (2, 4, 6). . . . .	$\text{OH.C}_6\text{H}_2(\text{NH}_2)_3$ . . . . .	139.19	.....
8	Triazobenzene. . . . .	$\text{C}_6\text{H}_5\text{N:N}_2$ . . . . .	119.16	1.0980 <sup>10</sup>
9	Tribenzylamine. . . . .	$(\text{C}_6\text{H}_5\text{CH}_2)_3\text{N}$ . . . . .	287.21	.....
10	Tribrom-acetic acid . . . . .	$\text{CBr}_3.\text{CO}_2\text{H}$ . . . . .	296.89	.....
11	-benzene (s.). . . . .	1: 3: $5\text{C}_6\text{H}_3\text{Br}_3$ . . . . .	314.91	.....
12	" (as.). . . . .	1: 3: $4\text{C}_6\text{H}_3\text{Br}_3$ . . . . .	314.91	.....
13	" (v.). . . . .	1: 2: $3\text{C}_6\text{H}_3\text{Br}_3$ . . . . .	314.91	.....
14	-hydrine. . . . .	$\text{CH}_2\text{Br.CHBr.CH}_2\text{Br}$ . . . . .	280.89	2.436 <sup>23</sup>
15	-phenol (s.). . . . .	2: 4: $6\text{OH.C}_6\text{H}_2\text{Br}_3$ . . . . .	330.91	.....
16	-resorcine. . . . .	$(\text{OH})_2\text{C}_6\text{H.Br}_3$ . . . . .	346.91	.....
17	Tributyl amine . . . . .	$(\text{C}_4\text{H}_9)_3\text{N}$ . . . . .	185.26	0.7782 <sup>20</sup>
18	Tricarballic acid. . . . .	$\text{CO}_2\text{H.CH}(\text{CH}_2\text{CO}_2\text{H})_2$ . . . . .	176.06	.....
19	Tricarboxy phenol (1, 3, 5)	$\text{OH.C}_6\text{H}_2(\text{CO}_2\text{H})_3 + \text{H}_2\text{O}$	226.05	.....
20	Trichlor-acetal . . . . .	$\text{CHCl}_2.\text{CCl}(\text{OC}_2\text{H}_5)_2$ . . . . .	221.44	.....
21	" . . . . .	$\text{CCl}_3.\text{CH}(\text{OC}_2\text{H}_5)_2$ . . . . .	221.44	1.288
22	-acetamide . . . . .	$\text{CCl}_3.\text{CONH}_2$ . . . . .	162.41	.....
23	-acetic acid . . . . .	$\text{CCl}_3.\text{CO}_2\text{H}$ . . . . .	163.36	1.6298 <sup>61</sup>
24	-benzene (s.). . . . .	1: 3: $5\text{C}_6\text{H}_3\text{Cl}_3$ . . . . .	181.38	.....
25	" (as.). . . . .	1: 3: $4\text{C}_6\text{H}_3\text{Cl}_3$ . . . . .	181.38	1.574 <sup>10</sup>
26	" (v.). . . . .	1: 2: $3\text{C}_6\text{H}_3\text{Cl}_3$ . . . . .	181.38	[liq. 1.4658 <sup>10</sup>
27	benzoic acid . . . . .	2: 4: $5\text{Cl}_3\text{C}_6\text{H}_2.\text{CO}_2\text{H}$ . . . . .	225.38	.....
28	" " . . . . .	2: 3: $4\text{Cl}_3\text{C}_6\text{H}_2.\text{CO}_2\text{H}$ . . . . .	225.38	.....
29	" " . . . . .	3: 4: $5\text{Cl}_3\text{C}_6\text{H}_2.\text{CO}_2\text{H}$ . . . . .	225.38	.....
30	-bromethane . . . . .	$\text{Cl}_3\text{CBr}$ . . . . .	198.31	2.0550 <sup>4</sup>
31	-ethane (1, 1, 1). . . . .	$\text{CCl}_3.\text{CH}_3$ . . . . .	133.38	1.3249 <sup>48</sup>
32	" (1, 2, 2). . . . .	$\text{CH}_2\text{Cl.CHCl}_2$ . . . . .	133.38	1.4784 <sup>0</sup>
33	ethyl-alcohol . . . . .	$\text{CCl}_3.\text{CH}_2\text{OH}$ . . . . .	149.38	1.5500 <sup>23</sup>
34	-ethylene. . . . .	$\text{CHCl:CCl}_2$ . . . . .	131.36	.....
35	-hydrine. . . . .	$\text{OH}_2\text{Cl.CHCl.CH}_2\text{Cl}$ . . . . .	147.39	1.417 <sup>48</sup>
36	-hydroquinone. . . . .	$\text{Cl}_3\text{C}_6\text{H}(\text{OH})_2$ . . . . .	213.38	.....
37	-phenol . . . . .	$\text{Cl}_3\text{C}_6\text{H}_2\text{OH}$ . . . . .	197.38	.....
38	-phenol . . . . .	$\text{Cl}_3\text{C}_6\text{H}_2\text{OH}$ . . . . .	197.38	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	soluble	78-9°	.....	sm. need./et.
2	s. soluble	∞	∞	.....	258-9°	.....
3	.....	∞	∞	.....	266-7° dec.	colorless ....
4	s. sol. hot	v. soluble	v. soluble	143.5°	.....	red. moncl. ...
5	v. soluble	v. soluble	v. soluble	103°	336° C.	tab./w....
6	v. soluble	v. soluble	s. soluble	<100°	abt. 340°	crystalline...
7	.....	.....	.....	.....	257°	leaf./chlo ...
8	insol.	s. soluble	s. soluble	.....	73.5 <sup>22-4</sup>	needles.....
9	v. s. sol.	s. soluble	v. soluble	91.3°	.....	yellow oil....
10	v. soluble	v. soluble	v. soluble	135°	245°	moncl. lea./al.
11	.....	s. sol. hot	.....	119.6°	278°	moncl. tab ..
12	.....	s. soluble	.....	44°	275-6°	needles.....
13	.....	.....	.....	87.4°	.....	needles. [/al.
14	.....	.....	.....	16-7°	219-21°	large rhb: tab.
15	0.007 <sup>15</sup>	v. soluble	.....	95°	sub.	prisms .....
16	v. s. sol.	v. soluble	.....	111°	.....	long needles .
17	.....	.....	.....	.....	211-5° C. <sup>740</sup>	small need...
18	40.52 <sup>14</sup>	v. soluble	s. soluble	116°	sub. dec.	.....
19	0.5 <sup>10</sup>	v. sol. hot	s. soluble	.....	dec. 180°	rhombic.....
20	.....	soluble	.....	83°	230° dec.	warts .....
21	0.5	∞	∞; ∞ glyc.	.....	197°	moncl. n./al.
22	v. s. sol.	v. soluble	v. v. sol.	141°	238-9°	.....
23	v. soluble	soluble	soluble	57°	195°	mncl. tab./w.
24	.....	.....	.....	63.40	208.5°C. <sup>764</sup>	rhomohedral.
25	.....	.....	.....	16°	213°	long needles.
26	.....	s. soluble	.....	53-4°	218-9°	.....
27	v. v. s. sol.	v. soluble	.....	163°	sub.	large tab./al.
28	mod. sol.	.....	.....	129°	.....	sm. need./w.
29	v. v. s. sol.	v. soluble	v. soluble	203°	sub.	needles.....
30	.....	.....	.....	.....	104.07° C.	needles/al....
31	.....	.....	.....	.....	74.5°	.....
32	.....	.....	.....	.....	114°	.....
33	s. soluble	∞	∞	17.8°	151° <sup>737</sup>	rhomb. tab. .
34	.....	.....	.....	.....	88°	.....
35	.....	.....	.....	.....	158°	.....
36	0.6 <sup>15</sup>	v. soluble	v. soluble	134°	sub. leaf.	large prisms.
37	0.051 <sup>11</sup> ; 0.243 <sup>96</sup>	v. v. sol.	v. v. sol.	67-8°	243.5-4.5°	rhomb. pris. .
38	sol. hot	v. soluble	v. sol.; v. sol. lig.	53-4°	252-3°	long need./al.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Trichlor-quinone.....	$\text{Cl}_3\text{C}_6\text{H.O}_2$ .....	211.36	.....
2	Tricosane (n.).....	$\text{CH}_3(\text{CH}_2)_{21}\text{CH}_3$ .....	324.38	0.7785 <sup>4</sup>
3	Tricyan-ethane.....	$\text{CH}_3\text{C}(\text{CN})_3$ .....	105.15	.....
4	Tridecane.....	$\text{CH}_3(\text{CH}_2)_{11}\text{CH}_3$ .....	184.24	0.7608 <sup>4</sup>
5	Tridecylene.....	$\text{C}_{13}\text{H}_{26}$ .....	182.22	0.8445 <sup>0</sup>
6	Triethyl amine.....	$(\text{C}_2\text{H}_5)_3\text{N}$ .....	101.16	0.735 <sup>15</sup>
7	arsine.....	$(\text{C}_2\text{H}_5)_3\text{As}$ .....	162.12	1.151 <sup>17</sup>
8	benzene (s.).....	1: 3: 5 $\text{C}_6\text{H}_3(\text{C}_2\text{H}_5)_3$ .....	162.15	.....
9	borate.....	$(\text{C}_2\text{H}_5)_3\text{BO}_3$ .....	146.12	0.8863 <sup>2</sup>
10	boride.....	$(\text{C}_2\text{H}_5)_3\text{B}$ .....	98.12	0.6961 <sup>23</sup>
11	carbinol.....	$(\text{C}_2\text{H}_5)_3\text{COH}$ .....	116.12	0.8402 <sup>20</sup>
12	phosphine.....	$(\text{C}_2\text{H}_5)_3\text{P}$ .....	118.12	0.812 <sup>15</sup>
13	phosphite.....	$(\text{C}_2\text{H}_5)_3\text{PO}_3$ .....	166.12	1.075
14	silicol.....	$(\text{C}_2\text{H}_5)_3\text{SiOH}$ .....	132.53	0.8709 <sup>0</sup>
15	" ether.....	$(\text{C}_2\text{H}_5)_3\text{SiOC}_2\text{H}_5$ .....	160.56	0.8403 <sup>4</sup>
16	silicon hydride.....	$(\text{C}_2\text{H}_5)_3\text{SiH}$ .....	116.53	0.7510 <sup>0</sup>
17	" oxide.....	$[(\text{C}_2\text{H}_5)_3\text{Si}]_2\text{O}$ .....	247.04	0.8590 <sup>0</sup>
18	Trihydroxy-benzene (as.)	1: 2: 4 $\text{C}_6\text{H}_3(\text{OH})_3$ .....	126.05	.....
19	-benzoic acid.....	2: 3: 4 $(\text{OH})_3\text{C}_6\text{H}_2\text{CO}_2\text{H}$ .....	170.05	.....
20	-butane (1, 2, 3).....	$\text{CH}_3(\text{CHOH})_2\text{CH}_2\text{OH}$ .....	106.08	1.2324 <sup>17</sup>
21	-pyridine (s.).....	2: 4: 6 $(\text{OH})_3\text{C}_5\text{H}_2\text{N}$ .....	127.08	.....
22	Triiodo-acetic acid.....	$\text{Cl}_3\text{CO}_2\text{H}$ .....	183.98	.....
23	-benzene (as.).....	1: 2: 4 $\text{C}_6\text{H}_3\text{I}_3$ .....	455.94	.....
24	Trimellitic acid.....	1: 2: 4 $\text{C}_6\text{H}_3(\text{CO}_2\text{H})_3$ .....	210.05	.....
25	Trimesic acid (s.).....	1: 3: 5 $\text{C}_6\text{H}_3(\text{CO}_2\text{H})_3$ .....	210.05	.....
26	Trimethyl acetic acid.....	$(\text{CH}_3)_3\text{C.CO}_2\text{H}$ .....	102.08	0.905 <sup>50</sup>
27	amine.....	$(\text{CH}_3)_3\text{N}$ .....	59.11	0.662— <sup>5</sup>
28	" (K.).....	$(\text{CH}_3)_3\text{N}$ .....	59.11	0.662— <sup>5.2</sup>
29	anthracene.....	1: 2: 4 $(\text{CH}_3)_3\text{C}_{14}\text{H}_7$ .....	220.13	.....
30	".....	1: 3: 6 $(\text{CH}_3)_3\text{C}_{14}\text{H}_7$ .....	220.13	.....
31	".....	1: 4: 6 $(\text{CH}_3)_3\text{C}_{14}\text{H}_7$ .....	220.13	.....
32	arsine.....	$(\text{CH}_3)_3\text{As}$ .....	120.07	.....
33	benzoic acid.....	2: 4: 5 $(\text{CH}_3)_3\text{C}_6\text{H}_2\text{CO}_2\text{H}$ .....	164.10	.....
34	bismuth.....	$(\text{CH}_3)_3\text{Bi}$ .....	253.57	2.30 <sup>18</sup>
35	boride.....	$(\text{CH}_3)_3\text{B}$ .....	56.07	1.9108
36	-butene (3) (2, 2, 3) ..	$(\text{CH}_3)_3\text{C.C}(\text{CH}_3):\text{CH}_2$ .....	98.12	.....
37	carbinol.....	$(\text{CH}_3)_3\text{C.OH}$ .....	74.08	0.7864 <sup>29</sup>
38	-butyl alcohol (2, 3, 3)	$(\text{CH}_3)_3\text{C.COH}(\text{CH}_3)_2$ .....	116.13	.....
39	citrate.....	$(\text{CH}_3)_3\text{C}_6\text{H}_5\text{O}_7$ .....	234.12	.....
40	phosphate.....	$(\text{CH}_3)_3\text{PO}_4$ .....	140.07	1.2195 <sup>15</sup>
41	phosphine.....	$(\text{CH}_3)_3\text{P}$ .....	76.07	> 1.

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.	s. soluble	v. soluble	165-6°	.....	large yel. leaf.
2	.....	s. soluble	soluble	47.7°	234° <sup>15</sup>	glit. leaf./al. + et. ....
3	.....	v. soluble	v. soluble	93.5°	volatile	pale y. need.
4	.....	.....	.....	-6.2°	234°	.....
5	.....	.....	.....	.....	232.7° C.	.....
6	s. soluble	soluble	.....	.....	89°	.....
7	insol.	.....	.....	.....	140° <sup>736</sup> dec.	.....
8	.....	.....	.....	.....	214-8°	.....
9	.....	.....	.....	.....	119.5°	.....
10	.....	soluble	soluble	.....	95°	.....
11	s. soluble	soluble	soluble	.....	140-2°	.....
12	insol.	soluble	soluble	.....	127° <sup>744</sup>	.....
13	.....	soluble	soluble	.....	191°	.....
14	insol.	.....	.....	.....	154°	.....
15	insol.	sol. H <sub>2</sub> SO <sub>4</sub>	.....	.....	153°	.....
16	insol.	.....	.....	.....	107°	.....
17	.....	sol. H <sub>2</sub> SO <sub>4</sub>	.....	.....	231°	.....
18	v. soluble	v. soluble	v. v. sol.	140.5°	with steam	mncl. leaf./et.
19	0.13 <sup>12</sup>	soluble	v. soluble	d.195-200°	.....	silky need./w.
20	soluble	∞	∞	.....	134-6° <sup>28</sup>	.....
21	mod. sol.	.....	.....	220-30°	.....	micro. cryst..
22	.....	.....	.....	150° dec.	.....	glit. yel. leaf.
23	.....	soluble	.....	76°	sub.	small needles
24	mod. sol.	.....	mod. sol.	216° dec.	.....	crusts. ....
25	0.38 <sup>16</sup>	v. soluble	mod. sol.	345-50°	sub. 300°+	prisms/w....
26	2.2 <sup>20</sup>	∞	v. soluble	35.3-.5°	163.7° C.	regular. ....
27	v. soluble	v. soluble	.....	.....	3.2-3.8°	.....
28	v. soluble	v. soluble	soluble	.....	3.2-3.8°	colorless. ....
29	.....	.....	.....	243°	.....	.....
30	sol. bz.	s. soluble	soluble	222°	.....	.....
31	sol. bz.	v. s. sol.	mod. sol.	227°	sub.	fluoresc. leaf.
32	s. soluble	.....	.....	.....	<100°	.....
33	v. s. sol. hot	v. soluble	v. soluble	149-50°	with steam	1" need./bz..
34	.....	.....	.....	.....	110°	.....
35	.....	.....	.....	.....	.....	gas. ....
36	.....	.....	.....	.....	78-80°	.....
37	deliq.	.....	.....	25°	82.94° C.	rhomb. tab...
38	→hydrate.	.....	.....	17°	131°	crystalline...
39	.....	.....	.....	78.5-9°	283-7° dec.	triclinic. ....
40	.....	soluble	soluble	.....	197.2° C.	.....
41	insol.	.....	.....	.....	40-2°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Trimethylene. . . . .	$\text{CH}_2 < (\text{CH}_2)_2 >$ . . . . .	42.05	.....
2	bromide. . . . .	$\text{CH}_2\text{Br}.\text{CH}_2.\text{CH}_2\text{Br}$ . . . . .	201.97	1.9736 <sup>17</sup>
3	-carbonic acid. . . . .	$\text{C}_3\text{H}_5.\text{CO}_2\text{H}$ . . . . .	86.05	1.0879 <sup>12</sup>
4	-dicarbonic acid (1, 2)	$\text{C}_3\text{H}_4(\text{CO}_2\text{H})_2$ . . . . .	130.05	.....
5	Trinitro-benzene (s.) . . . .	1: 3: 5 $\text{C}_6\text{H}_3(\text{NO}_2)_3$ . . . . .	213.15	.....
6	-cyan methane. . . . .	$(\text{NO}_2)_3\text{CCN}$ . . . . .	176.16	.....
7	naphthaline (α) . . . . .	$\text{C}_{10}\text{H}_5(\text{NO}_2)_3$ . . . . .	263.16	.....
8	“ (β) . . . . .	$\text{C}_{10}\text{H}_5(\text{NO}_2)_3$ . . . . .	263.16	.....
9	“ (γ) . . . . .	$\text{C}_{10}\text{H}_5(\text{NO}_2)_2$ . . . . .	263.16	.....
10	-phenol (s.) . . . . .	$(\text{NO}_2)_3\text{C}_6\text{H}_2.\text{OH}$ . . . . .	229.15	see picric ac.
11	“ (2, 3, 6) . . . . .	$(\text{NO}_2)_3\text{C}_6\text{H}_2.\text{OH}$ . . . . .	229.15	.....
12	“ (3, 4, 6) . . . . .	$(\text{NO}_2)_3\text{C}_6\text{H}_2.\text{OH}$ . . . . .	229.15	.....
13	-toluene (s.) . . . . .	2: 4: 6 $(\text{NO}_2)_3\text{C}_6\text{H}_2.\text{CH}_3$ . . . . .	227.16	.....
14	-triphenyl methane . . . .	$(\text{NO}_2.\text{C}_6\text{H}_4)_3\text{CH}$ . . . . .	379.23	.....
15	Trioxymethylene (α) . . . .	$\text{C}_3\text{H}_6\text{O}_3$ . . . . .	90.05	.....
16	Tripalmitin . . . . .	$\text{C}_3\text{H}_5(\text{C}_{16}\text{H}_{31}\text{O}_2)_3$ . . . . .	806.78	0.8657 <sup>12</sup>
17	Triphenyl amine. . . . .	$(\text{C}_6\text{H}_5)_3\text{N}$ . . . . .	245.16	.....
18	benzene (s.) . . . . .	1: 3: 5 $\text{C}_6\text{H}_3(\text{C}_6\text{H}_5)_3$ . . . . .	306.15	1.2055
19	carbinol . . . . .	$(\text{C}_6\text{H}_5)_3\text{COH}$ . . . . .	260.13	.....
20	ethane (s.) . . . . .	$\text{C}_6\text{H}_5.\text{CH}_2.\text{CH}(\text{C}_6\text{H}_5)_2$ . . . . .	258.15	.....
21	guanidine (α) . . . . .	$\text{C}_6\text{H}_5.\text{N}:\text{C}(\text{NHC}_6\text{H}_5)_2$ . . . . .	287.26	.....
22	“ (β) . . . . .	$\text{HN}:\text{C}(\text{NHC}_6\text{H}_5)\text{N}(\text{C}_6\text{H}_5)_2$ . . . . .	287.26	.....
23	methane. . . . .	$(\text{C}_6\text{H}_5)_3\text{CH}$ . . . . .	244.13	.....
24	phosphine . . . . .	$(\text{C}_6\text{H}_5)_3\text{P}$ . . . . .	262.12	1.194
25	Tripropyl amine (K.) . . . .	$(\text{CH}_3.\text{CH}_2.\text{CH}_2)_3\text{N}$ . . . . .	143.21	0.750 <sup>11</sup>
26	Tristearin . . . . .	$\text{C}_3\text{H}_5(\text{C}_{18}\text{H}_{35}\text{O}_2)_3$ . . . . .	826.88	0.8621 <sup>12</sup>
27	Trithio-aldehyde. . . . .	$(\text{CH}_3\text{CSH})_3$ . . . . .	180.28	.....
28	“ (α) . . . . .	$(\text{CH}_3\text{CSH})_3$ . . . . .	180.28	.....
29	-carbonic acid. . . . .	$\text{CS}(\text{SH})_2$ . . . . .	110.20	.....
30	-glycerine. . . . .	$\text{CH}_2\text{SH}.\text{CHSH}.\text{CH}_2\text{SH}$ . . . . .	140.24	1.391 <sup>14</sup>
31	Tyrosin . . . . .	$\text{OHC}_6\text{H}_7\text{CH}_2.\text{CH}(\text{NH})_2$ $\text{CO}_2\text{H}$ . . . . .	181.18	1.456
32	Undecane (n.) . . . . .	$\text{CH}_3(\text{CH}_2)_9\text{CH}_3$ . . . . .	156.20	0.7448 <sup>15</sup>
33	Undecylene . . . . .	$\text{C}_{11}\text{H}_{22}$ . . . . .	154.18	0.7909 <sup>0</sup>
34	Undecyclic acid. . . . .	$\text{CH}_3(\text{CH}_2)_9\text{CO}_2\text{H}$ . . . . .	186.18	.....
35	Uramil (murexan) . . . . .	$\text{CO} < (\text{NH}.\text{CO})_2 > \text{CHNH}_2$ . . . . .	143.16	.....
36	Urea . . . . .	$\text{CO}(\text{NH}_2)_2$ . . . . .	60.11	1.323
37	Urethane . . . . .	$\text{NH}_2\text{CO}_2.\text{C}_2\text{H}_5$ . . . . .	89.10	0.9862 <sup>21</sup>
38	Uric acid . . . . .	$\text{C}_5\text{H}_4\text{N}_4\text{O}_3$ . . . . .	168.19	1.855–1.893
39	Usnic acid (α) . . . . .	$\text{C}_{18}\text{H}_{16}\text{O}_7$ . . . . .	344.13	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	.....	-126°	-35° <sup>07</sup>	.....
2	.....	.....	.....	.....	165° C.	.....
3	s. soluble	.....	.....	18-19°	182-4°	.....
4	20	.....	soluble	175°	210° <sup>30</sup>	needles/et. . .
5	s. sol. hot	1.9 <sup>16</sup>	v. soluble	121.2°	dec.	rhb. tab. /als
6	dec.	dec.	soluble	41.5°	exp. 220°	camphor.mas.
7	v. sol. acet.	v. soluble	v. sol. chlo.	122°	.....	monoclinic...
8	v.s.sol. chlo.	0.046; 23 <sup>88</sup> %	v. s. sol.	218°	.....	monocl./chol.
9	0.64 chlo.	0.122 <sup>90</sup> %	0.39	147°	.....	glit. yel. leaf.
10	.....	.....	.....	.....	.....	.....
11	mod.sol. hot	v. soluble	v. soluble	117-8°	.....	small need...
12	mod.sol. hot	v. soluble	v. soluble	96°	.....	glt.n.or scales
13	0.386 <sup>17</sup> CS <sub>2</sub>	v. sol. hot	.....	82°	.....	rhombic.....
14	sol. bz.	.....	v. s. sol.	206-7°	.....	cryst./bz....
15	soluble	soluble	soluble	60-1°	sub.	needles .....
16	.....	0.0043 <sup>21</sup> abs.	v. soluble	65.1°	.....	irreg. cryst...
17	mod. sol.bz.	s. soluble	sol. acet.	127°	.....	mncl. pris./et
18	sol. bz.	s. soluble	s. soluble	169-70°	dist.	rhb. tab. /et.
19	sol. bz.	v. soluble	v. soluble	162°	360°+	hexag./bz....
20	.....	insol.	v. soluble	.....	396-400°	.....
21	insol.	4.6°	.....	143°	dec.	rhb. pris./al..
22	v. s. sol.	v. soluble	v. soluble	131°	.....	regular tab...
23	sol. bz. hot	s. soluble	v. soluble	92°	358-9° <sup>754</sup>	rhombic.....
24	insol.	mod. sol.	v. soluble	79°	>360°	mncl. tab./et.
25	s. soluble	∞	soluble	.....	154.5-6.5°	colorless.....
26	.....	v. s. sol.	.....	71.6°	dist. in vac.	cryst.....
27	insol.	soluble	soluble	45-6°	205°	rhomb. need.
28	.....	.....	.....	101°	246-7°	long prisms..
29	insol.	sol. Na <sub>2</sub> CO <sub>3</sub>	.....	.....	.....	red. brown oil
30	insol.	mod. sol.	insol.	.....	.....	.....
31	0.04 <sup>20</sup>	0.01 <sup>17</sup>	insol.	235°	.....	silky needles.
32	.....	.....	.....	-25.6°	194.5° C.	.....
33	.....	.....	.....	.....	195.4° C.	.....
34	insol.	v. soluble	.....	28.5°	212.5° <sup>100</sup>	scales.....
35	insol.	sol. NH <sub>3</sub>	.....	.....	.....	needles.....
36	100	5.06	s. soluble	132°	dec.	quadratic....
37	v. soluble	v. soluble	v. soluble	49-50°	180°	leaflets.....
38	0.007	insol.	insol.	dec.	dec.	scales.....
39	insol.	v. s. sol.	s. soluble	195-6°	dec.	yel. pris./al. .

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Usnic acid ( $\beta$ ) . . . . .	$C_{18}H_{16}O_7$ . . . . .	344.13	.....
2	Uvic acid . . . . .	$(CH_3)_2C_4HO.CO_2H$ . . . .	140.06	.....
3	Uvitic acid 1: 3: 5. . . . .	$CH_3.C_4H_3(CO_2H)_2$ . . . . .	180.06	.....
4	Valeric acid n. (K.) . . . . .	$CH_3(CH_2)_3CO_2H$ . . . . .	102.08	0.937 $\frac{1}{2}$
5	Vanillic acid 3: 4: 1. . . . .	$CH_3O.C_6H_3(OH)CO_2H$ . . . .	168.06	.....
6	alcohol 3: 4: 1. . . . .	$CH_3O.C_6H_3(OH)CH_2OH$ . . . .	154.08	.....
7	Vanilline 3: 4: 1 . . . . .	$CH_3O.C_6H_3(OH)CHO$ . . . . .	152.06	.....
8	Valeric acid (n.) . . . . .	$CH_3(CH_2)_3CO_2H$ . . . . .	102.08	0.9415 <sup>20</sup>
9	aldehyde . . . . .	$CH_3(CH_2)_3CHO$ . . . . .	86.08	0.8185 <sup>11</sup>
10	anhydride . . . . .	$(C_5H_9O)_2O$ . . . . .	186.15	0.927 $\frac{1}{2}$
11	Valerylene . . . . .	$CH_3.C:C.CH_2.CH_3$ . . . . .	68.06	.....
12	Valylene . . . . .	$CH_2:C.(CH_3).C.CH$ . . . . .	66.05	.....
13	Veratrol (K.) . . . . .	$C_6H_4(OCH_3)_2$ . . . . .	138.08	1.084 $\frac{1}{2}$
14	Vesuvine . . . . .	$NH_2C_6H_4.N_2.C_6H_3(NH_2)_2$	227.11	.....
15	Vinyl amine . . . . .	$CH_2:CH.NH_2$ . . . . .	43.08	.....
16	bromide . . . . .	$CH_2:CHBr$ . . . . .	106.99	1.5167 <sup>14</sup>
17	chloride . . . . .	$CH_2:CHCl$ . . . . .	62.48	.....
18	ether . . . . .	$(CH_2:CH)_2O$ . . . . .	70.05	.....
19	ethyl carbinol . . . . .	$C_2H_5.CH(OH).C_2H_5$ . . . . .	86.08	0.840 $\frac{1}{2}$
20	" ether . . . . .	$C_2H_5.O.C_2H_5$ . . . . .	72.06	0.7625 $\frac{1}{2}$
21	sulphide . . . . .	$(CH_2:CH_2)_2S$ . . . . .	86.11	0.9125
22	Wood alcohol . . . . .	(see methyl alcohol)		
23	Xanthene . . . . .	$C_{13}H_{10}O$ . . . . .	182.08	.....
24	Xanthine . . . . .	$C_5H_4N_4O_2$ . . . . .	152.19	.....
25	Xanthone . . . . .	$CO < (C_6H_4)_2 > CO$ . . . . .	196.06	.....
26	Xylene (o.) . . . . .	$C_6H_4(CH_3)_2$ . . . . .	106.08	0.8932 <sup>0</sup>
27	" (K.) . . . . .	$C_6H_4(CH_3)_2$ . . . . .	106.08	0.876 $\frac{1}{2}$
28	" (m.) . . . . .	$C_6H_4(CH_3)_2$ . . . . .	106.08	0.866 $\frac{1}{2}$
29	" (K.) . . . . .	$C_6H_4(CH_3)_2$ . . . . .	106.08	0.863 $\frac{1}{2}$
30	" (p.) . . . . .	$C_6H_4(CH_3)_2$ . . . . .	106.08	0.8801 <sup>0</sup>
31	" (K.) . . . . .	$C_6H_4(CH_3)_2$ . . . . .	106.08	0.859 $\frac{1}{2}$
32	" com'l pure (K.)	$C_6H_4(CH_3)_2$ . . . . .	106.08	0.861 $\frac{1}{2}$
33	sulphonic ac. (4) (1, 2)	$(CH_3)_2C_6H_3.SO_3H + 2H_2O$	222.18	.....
34	Xylenol (1, 2) (3) . . . . .	$(CH_3)_2C_6H_3OH$ . . . . .	122.08	.....
35	" (1, 2) (4) . . . . .	$(CH_3)_2C_6H_3OH$ . . . . .	122.08	.....
36	" (1, 3) (2) . . . . .	$(CH_3)_2C_6H_3OH$ . . . . .	122.08	.....
37	" (1, 3) (4) . . . . .	$(CH_3)_2C_6H_3OH$ . . . . .	122.08	1.0362 <sup>0</sup>
38	" (1, 3) (5) . . . . .	$(CH_3)_2C_6H_3OH$ . . . . .	122.08	.....
39	" (1, 4) (2) . . . . .	$(CH_3)_2C_6H_3OH$ . . . . .	122.08	0.9709 <sup>81</sup>
40	Xylidine 1: 2: 3 . . . . .	$(CH_3)_2C_6H_3.NH_2$ . . . . .	121.13	0.991 <sup>15</sup>
41	" 1: 2: 4 . . . . .	$(CH_3)_2C_6H_3.NH_2$ . . . . .	121.13	1.0755 <sup>17</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	v. s. sol.	0.3 <sup>20</sup>	199–201°	.....	yel. mon. pris.
2	0.25 <sup>100</sup>	v. soluble	v. v. sol.	135°	with steam	needles/w...
3	insol.	v. soluble	v. soluble	287–8°	sub.	fine need./w.
4	3.7 c.c. <sup>16</sup>	∞	∞	–59°	185.5–6.5	colorless....
5	0.12 <sup>14</sup>	v. soluble	soluble	207°	sub.	needles/w....
6	v. sol. hot	v. soluble	v. soluble	115°	dec.	prisms.....
7	1.0 <sup>14</sup> ; 5 <sup>80</sup>	v. soluble	v. soluble	80–1°	285° in CO <sub>2</sub>	moncl. n./w..
8	3.7 <sup>16</sup>	∞	∞	–58.5°	186.4° C.	.....
9	s. soluble	.....	.....	.....	103.4°	.....
10	insol.	.....	.....	.....	215°	.....
11	.....	.....	.....	.....	55.5–6°	.....
12	.....	.....	.....	.....	50°	.....
13	s. soluble	soluble	soluble	23°	206–7°	cryst.....
14	s. sol. hot	v. soluble	v. soluble	143.5°	.....	{ red moncl. [tab./w.
15	.....	soluble	.....	.....	56°	
16	.....	.....	.....	.....	16° <sup>750</sup>	
17	.....	soluble	.....	.....	–18–15°	.....
18	.....	soluble	∞	.....	39°	.....
19	.....	.....	.....	.....	114–4.5°	.....
20	s. soluble	∞	∞	.....	35.5°	.....
21	s. soluble	∞	∞	.....	101°	oily.....
22	.....	.....	.....	.....	.....	.....
23	v. s. soluble	s. soluble	soluble	100.5°	315° C.	leaflets/al...
24	0.26 <sup>17</sup>	0.033 <sup>17</sup>	v.sol.KOH	.....	sub. pt.dec.	powder.....
25	insol.	0.7	s. soluble	173–4°	350–1°	long nee. /al.
26	insol.	v. soluble	v. soluble	–28°	142° C.	.....
27	insol.	soluble	∞	–29°	142–3°	colorless....
28	insol.	v. soluble	v. soluble	–54–3°	139.2°	.....
29	insol.	soluble	∞	–54°	138.5–9.5	colorless....
30	insol.	v. soluble	v. soluble	15°	138°	moncl. prisms
31	insol.	soluble	∞	15°	137–7.5	moncl. prisms
32	insol.	soluble	∞	.....	.....	.....
33	soluble	.....	.....	dec.	.....	rectang. tab..
34	soluble	soluble	.....	75°	218° C.	long need./w.
35	soluble	soluble	.....	65°	225° <sup>757</sup>	long need./w.
36	s. sol. hot	soluble	.....	49°	211–2°	leaflets.....
37	v. s. sol.	∞	∞	26°	211.5° C.	needles.....
38	s. soluble	soluble	sol. NaOH	68° or 64°	219.5°	fine need./w.
39	soluble	soluble	.....	74.5°	211.5°	large flat ned.
40	.....	.....	.....	< –15°	223° <sup>739</sup>	.....
41	s. soluble	mod.sol.lig	.....	49°	226°	moncl. tab...

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Xylidine 1: 3: 2.....	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{NH}_2$ .....	121.13	.....
2	“ 1: 3: 4.....	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{NH}_2$ .....	121.13	0.9184 <sup>15</sup>
3	“ 1: 3: 5.....	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{NH}_2$ .....	121.13	0.9935 <sup>0</sup>
4	“ 1: 4: 2.....	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{NH}_2$ .....	121.13	0.980 <sup>15</sup>
5	Xylose (l.).....	$\text{C}_5\text{H}_{10}\text{O}_5$ .....	150.08	1.535 <sup>0</sup>
6	Zinc ethyl.....	$\text{Zn}(\text{C}_2\text{H}_5)_2$ .....	123.48	1.182 <sup>18</sup>
7	methyl.....	$\text{Zn}(\text{CH}_3)_2$ .....	95 45	1386 <sup>10</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	.....	.....	216°	.....
2	.....	.....	.....	.....	212°	.....
3	.....	.....	.....	.....	220-1.°	.....
4	.....	.....	.....	15.5°	215° <sup>739</sup>	.....
5	117 <sup>10</sup>	v. v. s. sol.	v. v. s. sol.	150-3°	.....	orthorhomb.
6	dec.	dec.	soluble	-28°	118°	.....
7	dec.	.....	.....	-40°	46°	.....

SPECIFIC GRAVITY TABLES

XXVII (a). — EQUIVALENT OF DEGREES BAUMÉ  
(AMERICAN STANDARD) AND SPECIFIC  
GRAVITY AT 60° F.

DEGREES BAUMÉ = 145 -  $\frac{145}{\text{Sp. Gr.}}$  For Liquids Heavier than Water.

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
0.0	1.0000	.7	1.0262	.4	1.0538	.1	1.0829
.1	1.0007	.8	1.0269	.5	1.0545	.2	1.0837
.2	1.0014	.9	1.0276	.6	1.0553	.3	1.0845
.3	1.0021	4.0	1.0284	.7	1.0561	.4	1.0853
.4	1.0028	.1	1.0291	.8	1.0569	.5	1.0861
.5	1.0035	.2	1.0298	.9	1.0576	.6	1.0870
.6	1.0042	.3	1.0306	8.0	1.0584	.7	1.0878
.7	1.0049	.4	1.0313	.1	1.0592	.8	1.0886
.8	1.0055	.5	1.0320	.2	1.0599	.9	1.0894
.9	1.0062	.6	1.0328	.3	1.0607	12.0	1.0902
1.0	1.0069	.7	1.0335	.4	1.0615	.1	1.0910
.1	1.0076	.8	1.0342	.5	1.0623	.2	1.0919
.2	1.0083	.9	1.0350	.6	1.0630	.3	1.0927
.3	1.0090	5.0	1.0357	.7	1.0638	.4	1.0935
.4	1.0097	.1	1.0365	.8	1.0646	.5	1.0943
.5	1.0105	.2	1.0372	.9	1.0654	.6	1.0952
.6	1.0112	.3	1.0379	9.0	1.0662	.7	1.0960
.7	1.0119	.4	1.0387	.1	1.0670	.8	1.0968
.8	1.0126	.5	1.0394	.2	1.0677	.9	1.0977
.9	1.0133	.6	1.0402	.3	1.0685	13.0	1.0985
2.0	1.0140	.7	1.0409	.4	1.0693	.1	1.0993
.1	1.0147	.8	1.0417	.5	1.0701	.2	1.1002
.2	1.0154	.9	1.0424	.6	1.0709	.3	1.1010
.3	1.0161	6.0	1.0432	.7	1.0717	.4	1.1018
.4	1.0168	.1	1.0439	.8	1.0725	.5	1.1027
.5	1.0175	.2	1.0447	.9	1.0733	.6	1.1035
.6	1.0183	.3	1.0454	10.0	1.0741	.7	1.1043
.7	1.0190	.4	1.0462	.1	1.0749	.8	1.1052
.8	1.0197	.5	1.0469	.2	1.0757	.9	1.1060
.9	1.0204	.6	1.0477	.3	1.0765	14.0	1.1069
3.0	1.0211	.7	1.0484	.4	1.0773	.1	1.1077
.1	1.0218	.8	1.0492	.5	1.0781	.2	1.1086
.2	1.0226	.9	1.0500	.6	1.0789	.3	1.1094
.3	1.0233	7.0	1.0507	.7	1.0797	.4	1.1103
.4	1.0240	.1	1.0515	.8	1.0805	.5	1.1111
.5	1.0247	.2	1.0522	.9	1.0813	.6	1.1120
.6	1.0255	.3	1.0530	11.0	1.0821	.7	1.1128

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.8	1.1137	.2	1.1526	.6	1.1944	28.0	1.2393
.9	1.1145	.3	1.1535	.7	1.1954	.1	1.2404
15.0	1.1154	.4	1.1545	.8	1.1964	.2	1.2414
.1	1.1162	.5	1.1554	.9	1.1974	.3	1.2425
.2	1.1171	.6	1.1563	24.0	1.1983	.4	1.2436
.3	1.1180	.7	1.1572	.1	1.1993	.5	1.2446
.4	1.1188	.8	1.1581	.2	1.2003	.6	1.2457
.5	1.1197	.9	1.1591	.3	1.2013	.7	1.2468
.6	1.1206	20.0	1.1600	.4	1.2023	.8	1.2478
.7	1.1214	.1	1.1609	.5	1.2033	.9	1.2489
.8	1.1223	.2	1.1619	.6	1.2043	29.0	1.2500
.9	1.1232	.3	1.1628	.7	1.2053	.1	1.2511
16.0	1.1240	.4	1.1637	.8	1.2063	.2	1.2522
.1	1.1249	.5	1.1647	.9	1.2073	.3	1.2532
.2	1.1258	.6	1.1656	25.0	1.2083	.4	1.2543
.3	1.1267	.7	1.1665	.1	1.2093	.5	1.2554
.4	1.1275	.8	1.1675	.2	1.2104	.6	1.2565
.5	1.1284	.9	1.1684	.3	1.2114	.7	1.2576
.6	1.1293	21.0	1.1694	.4	1.2124	.8	1.2587
.7	1.1302	.1	1.1703	.5	1.2134	.9	1.2598
.8	1.1310	.2	1.1712	.6	1.2144	30.0	1.2609
.9	1.1319	.3	1.1722	.7	1.2154	.1	1.2620
17.0	1.1328	.4	1.1731	.8	1.2164	.2	1.2631
.1	1.1337	.5	1.1741	.9	1.2175	.3	1.2642
.2	1.1346	.6	1.1750	26.0	1.2185	.4	1.2653
.3	1.1355	.7	1.1760	.1	1.2195	.5	1.2664
.4	1.1364	.8	1.1769	.2	1.2205	.6	1.2675
.5	1.1373	.9	1.1779	.3	1.2216	.7	1.2686
.6	1.1381	22.0	1.1789	.4	1.2226	.8	1.2697
.7	1.1390	.1	1.1798	.5	1.2236	.9	1.2708
.8	1.1399	.2	1.1808	.6	1.2247	31.0	1.2719
.9	1.1408	.3	1.1817	.7	1.2257	.1	1.2730
18.0	1.1417	.4	1.1827	.8	1.2267	.2	1.2742
.1	1.1426	.5	1.1837	.9	1.2278	.3	1.2753
.2	1.1435	.6	1.1846	27.0	1.2288	.4	1.2764
.3	1.1444	.7	1.1856	.1	1.2299	.5	1.2775
.4	1.1453	.8	1.1866	.2	1.2309	.6	1.2787
.5	1.1462	.9	1.1876	.3	1.2319	.7	1.2798
.6	1.1472	23.0	1.1885	.4	1.2330	.8	1.2809
.7	1.1481	.1	1.1895	.5	1.2340	.9	1.2821
.8	1.1490	.2	1.1905	.6	1.2351	32.0	1.2832
.9	1.1499	.3	1.1915	.7	1.2361	.1	1.2843
19.0	1.1508	.4	1.1924	.8	1.2372	.2	1.2855
.1	1.1517	.5	1.1934	.9	1.2383	.3	1.2866

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.4	1.2877	.8	1.3401	.2	1.3969	.6	1.4588
.5	1.2889	.9	1.3414	.3	1.3983	.7	1.4602
.6	1.2900	37.0	1.3426	.4	1.3996	.8	1.4617
.7	1.2912	.1	1.3438	.5	1.4010	.9	1.4632
.8	1.2923	.2	1.3451	.6	1.4023	46.0	1.4646
.9	1.2935	.3	1.3463	.7	1.4037	.1	1.4661
33.0	1.2946	.4	1.3476	.8	1.4050	.2	1.4676
.1	1.2958	.5	1.3488	.9	1.4064	.3	1.4691
.2	1.2970	.6	1.3501	42.0	1.4078	.4	1.4706
.3	1.2981	.7	1.3514	.1	1.4091	.5	1.4721
.4	1.2993	.8	1.3526	.2	1.4105	.6	1.4736
.5	1.3004	.9	1.3539	.3	1.4119	.7	1.4751
.6	1.3016	38.0	1.3551	.4	1.4133	.8	1.4766
.7	1.3028	.1	1.3564	.5	1.4146	.9	1.4781
.8	1.3040	.2	1.3577	.6	1.4160	47.0	1.4796
.9	1.3051	.3	1.3590	.7	1.4174	.1	1.4811
34.0	1.3063	.4	1.3602	.8	1.4188	.2	1.4826
.1	1.3075	.5	1.3615	.9	1.4202	.3	1.4841
.2	1.3087	.6	1.3628	43.0	1.4216	.4	1.4857
.3	1.3098	.7	1.3641	.1	1.4230	.5	1.4872
.4	1.3110	.8	1.3653	.2	1.4244	.6	1.4887
.5	1.3122	.9	1.3666	.3	1.4258	.7	1.4902
.6	1.3134	39.0	1.3679	.4	1.4272	.8	1.4918
.7	1.3146	.1	1.3692	.5	1.4286	.9	1.4933
.8	1.3158	.2	1.3705	.6	1.4300	48.0	1.4948
.9	1.3170	.3	1.3718	.7	1.4314	.1	1.4964
35.0	1.3182	.4	1.3731	.8	1.4328	.2	1.4979
.1	1.3194	.5	1.3744	.9	1.4342	.3	1.4995
.2	1.3206	.6	1.3757	44.0	1.4356	.4	1.5010
.3	1.3218	.7	1.3770	.1	1.4371	.5	1.5026
.4	1.3230	.8	1.3783	.2	1.4385	.6	1.5041
.5	1.3242	.9	1.3796	.3	1.4399	.7	1.5057
.6	1.3254	40.0	1.3810	.4	1.4414	.8	1.5073
.7	1.3266	.1	1.3823	.5	1.4428	.9	1.5088
.8	1.3278	.2	1.3836	.6	1.4442	49.0	1.5104
.9	1.3291	.3	1.3849	.7	1.4457	.1	1.5120
36.0	1.3303	.4	1.3862	.8	1.4471	.2	1.5136
.1	1.3315	.5	1.3876	.9	1.4486	.3	1.5152
.2	1.3327	.6	1.3889	45.0	1.4500	.4	1.5167
.3	1.3329	.7	1.3902	.1	1.4515	.5	1.5183
.4	1.3352	.8	1.3916	.2	1.4529	.6	1.5199
.5	1.3364	.9	1.3929	.3	1.4544	.7	1.5215
.6	1.3376	41.0	1.3942	.4	1.4558	.8	1.5231
.7	1.3389	.1	1.3956	.5	1.4573	.9	1.5247

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
50.0	1.5263	.4	1.6004	.8	1.6821	.2	1.7726
.1	1.5279	.5	1.6022	.9	1.6841	.3	1.7748
.2	1.5295	.6	1.6040	59.0	1.6860	.4	1.7770
.3	1.5312	.7	1.6058	.1	1.6880	.5	1.7791
.4	1.5328	.8	1.6075	.2	1.6900	.6	1.7813
.5	1.5344	.9	1.6093	.3	1.6919	.7	1.7835
.6	1.5360	55.0	1.6111	.4	1.6939	.8	1.7857
.7	1.5376	.1	1.6129	.5	1.6959	.9	1.7879
.8	1.5393	.2	1.6147	.6	1.6979	64.0	1.7901
.9	1.5409	.3	1.6165	.7	1.6999	.1	1.7923
51.0	1.5426	.4	1.6183	.8	1.7019	.2	1.7946
.1	1.5442	.5	1.6201	.9	1.7039	.3	1.7968
.2	1.5458	.6	1.6219	60.0	1.7059	.4	1.7990
.3	1.5475	.7	1.6237	.1	1.7079	.5	1.8012
.4	1.5491	.8	1.6256	.2	1.7099	.6	1.8035
.5	1.5508	.9	1.6274	.3	1.7119	.7	1.8057
.6	1.5525	56.0	1.6292	.4	1.7139	.8	1.8080
.7	1.5541	.1	1.6310	.5	1.7160	.9	1.8102
.8	1.5558	.2	1.6329	.6	1.7180	65.0	1.8125
.9	1.5575	.3	1.6347	.7	1.7200	.1	1.8148
52.0	1.5591	.4	1.6366	.8	1.7221	.2	1.8170
.1	1.5608	.5	1.6384	.9	1.7241	.3	1.8193
.2	1.5625	.6	1.6403	61.0	1.7262	.4	1.8216
.3	1.5642	.7	1.6421	.1	1.7282	.5	1.8239
.4	1.5659	.8	1.6440	.2	1.7303	.6	1.8262
.5	1.5676	.9	1.6459	.3	1.7324	.7	1.8285
.6	1.5693	57.0	1.6477	.4	1.7344	.8	1.8308
.7	1.5710	.1	1.6496	.5	1.7365	.9	1.8331
.8	1.5727	.2	1.6515	.6	1.7386	66.0	1.8354
.9	1.5744	.3	1.6534	.7	1.7407	.1	1.8378
53.0	1.5761	.4	1.6553	.8	1.7428	.2	1.8401
.1	1.5778	.5	1.6571	.9	1.7449	.3	1.8424
.2	1.5795	.6	1.6590	62.0	1.7470	.4	1.8448
.3	1.5812	.7	1.6609	.1	1.7491	.4	1.8448
.4	1.5830	.8	1.6628	.2	1.7512	.5	1.8471
.5	1.5847	.9	1.6648	.3	1.7533	.6	1.8495
.6	1.5864	58.0	1.6667	.4	1.7554	.7	1.8519
.7	1.5882	.1	1.6686	.5	1.7576	.8	1.8542
.8	1.5899	.2	1.6705	.6	1.7597	.9	1.8566
.9	1.5917	.3	1.6724	.7	1.7618	67.0	1.8590
54.0	1.5934	.4	1.6744	.8	1.7640	.1	1.8614
.1	1.5952	.5	1.6763	.9	1.7661	.2	1.8638
.2	1.5969	.6	1.6782	63.0	1.7683	.3	1.8662
.3	1.5987	.7	1.6802	.1	1.7705	.4	1.8686

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.5	1.8710	.2	1.8880	.9	1.9054	.6	1.9231
.6	1.8734	.3	1.8905	69.0	1.9079	.7	1.9256
.7	1.8758	.4	1.8930	.1	1.9104	.8	1.9282
.8	1.8782	.5	1.8954	.2	1.9129	.9	1.9308
.9	1.8807	.6	1.8979	.3	1.9155	70.0	1.9333
68.0	1.8831	.7	1.9004	.4	1.9180		
.1	1.8856	.8	1.9029	.5	1.9205		

XXVII (b). — EQUIVALENT BAUMÉ DEGREES  
(AMERICAN STANDARD) WITH SPECIFIC  
GRAVITY AT 60° F.

Sp. Gr. =  $\frac{140}{130 + B^{\circ}}$  For Liquids Lighter than Water.

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
10.0	1.0000	.2	0.9845	.4	0.9695	.6	0.9550
.1	0.9993	.3	0.9838	.5	0.9689	.7	0.9543
.2	0.9986	.4	0.9831	.6	0.9682	.8	0.9537
.3	0.9979	.5	0.9825	.7	0.9675	.9	0.9530
.4	0.9972	.6	0.9818	.8	0.9669	17.0	0.9524
.5	0.9964	.7	0.9811	.9	0.9662	.1	0.9517
.6	0.9957	.8	0.9804	15.0	0.9655	.2	0.9511
.7	0.9950	.9	0.9797	.1	0.9649	.3	0.9504
.8	0.9943	13.0	0.9790	.2	0.9642	.4	0.9498
.9	0.9936	.1	0.9783	.3	0.9635	.5	0.9492
11.0	0.9929	.2	0.9777	.4	0.9629	.6	0.9485
.1	0.9922	.3	0.9770	.5	0.9622	.7	0.9479
.2	0.9915	.4	0.9763	.6	0.9615	.8	0.9472
.3	0.9908	.5	0.9756	.7	0.9609	.9	0.9466
.4	0.9901	.6	0.9749	.8	0.9602	18.0	0.9459
.5	0.9894	.7	0.9743	.9	0.9596	.1	0.9453
.6	0.9887	.8	0.9736	16.0	0.9589	.2	0.9447
.7	0.9880	.9	0.9729	.1	0.9582	.3	0.9440
.8	0.9873	14.0	0.9722	.2	0.9576	.4	0.9434
.9	0.9866	.1	0.9715	.3	0.9569	.5	0.9428
12.0	0.9859	.2	0.9709	.4	0.9563	.6	0.9421
.1	0.9852	.3	0.9702	.5	0.9556	.7	0.9415



Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.8	0.9409	.2	0.9138	.6	0.8883	32.0	0.8642
.9	0.9402	.3	0.9132	.7	0.8878	.1	0.8637
19.0	0.9396	.4	0.9126	.8	0.8872	.2	0.8631
.1	0.9390	.5	0.9121	.9	0.8866	.3	0.8626
.2	0.9383	.6	0.9115	28.0	0.8861	.4	0.8621
.3	0.9377	.7	0.9109	.1	0.8855	.5	0.8615
.4	0.9371	.8	0.9103	.2	0.8850	.6	0.8610
.5	0.9365	.9	0.9097	.3	0.8844	.7	0.8605
.6	0.9358	24.0	0.9091	.4	0.8838	.8	0.8600
.7	0.9352	.1	0.9085	.5	0.8833	.9	0.8594
.8	0.9346	.2	0.9079	.6	0.8827	33.0	0.8589
.9	0.9340	.3	0.9073	.7	0.8822	.1	0.8584
20.0	0.9333	.4	0.9067	.8	0.8816	.2	0.8578
.1	0.9327	.5	0.9061	.9	0.8811	.3	0.8573
.2	0.9321	.6	0.9056	29.0	0.8805	.4	0.8568
.3	0.9315	.7	0.9050	.1	0.8799	.5	0.8563
.4	0.9309	.8	0.9044	.2	0.8794	.6	0.8557
.5	0.9302	.9	0.9038	.3	0.8788	.7	0.8552
.6	0.9296	25.0	0.9032	.4	0.8783	.8	0.8547
.7	0.9290	.1	0.9026	.5	0.8777	.9	0.8542
.8	0.9284	.2	0.9021	.6	0.8772	34.0	0.8537
.9	0.9278	.3	0.9015	.7	0.8766	.1	0.8531
21.0	0.9272	.4	0.9009	.8	0.8761	.2	0.8526
.1	0.9265	.5	0.9003	.9	0.8755	.3	0.8521
.2	0.9259	.6	0.8997	30.0	0.8750	.4	0.8516
.3	0.9253	.7	0.8992	.1	0.8745	.5	0.8511
.4	0.9247	.8	0.8986	.2	0.8739	.6	0.8505
.5	0.9241	.9	0.8980	.3	0.8734	.7	0.8500
.6	0.9235	26.0	0.8974	.4	0.8728	.8	0.8495
.7	0.9229	.1	0.8969	.5	0.8723	.9	0.8490
.8	0.9223	.2	0.8963	.6	0.8717	35.0	0.8485
.9	0.9217	.3	0.8957	.7	0.8712	.1	0.8480
22.0	0.9211	.4	0.8951	.8	0.8706	.2	0.8475
.1	0.9204	.5	0.8946	.9	0.8701	.3	0.8469
.2	0.9198	.6	0.8940	31.0	0.8696	.4	0.8464
.3	0.9192	.7	0.8934	.1	0.8690	.5	0.8459
.4	0.9186	.8	0.8929	.2	0.8685	.6	0.8454
.5	0.9180	.9	0.8923	.3	0.8679	.7	0.8449
.6	0.9174	27.0	0.8917	.4	0.8674	.8	0.8444
.7	0.9168	.1	0.8912	.5	0.8669	.9	0.8439
.8	0.9162	.2	0.8906	.6	0.8663	36.0	0.8434
.9	0.9156	.3	0.8900	.7	0.8658	.1	0.8429
23.0	0.9150	.4	0.8895	.8	0.8653	.2	0.8424
.1	0.9144	.5	0.8889	.9	0.8647	.3	0.8419

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.4	0.8413	.8	0.8197	.2	0.7991	.6	0.7795
.5	0.8408	.9	0.8192	.3	0.7986	.7	0.7791
.6	0.8403	41.0	0.8187	.4	0.7982	.8	0.7786
.7	0.8398	.1	0.8182	.5	0.7977	.9	0.7782
.8	0.8393	.2	0.8178	.6	0.7973	50.0	0.7778
.9	0.8388	.3	0.8173	.7	0.7968	.1	0.7773
37.0	0.8383	.4	0.8168	.8	0.7964	.2	0.7769
.1	0.8378	.5	0.8163	.9	0.7959	.3	0.7765
.2	0.8373	.6	0.8159	46.0	0.7955	.4	0.7761
.3	0.8368	.7	0.8154	.1	0.7950	.5	0.7756
.4	0.8363	.8	0.8149	.2	0.7946	.6	0.7752
.5	0.8358	.9	0.8144	.3	0.7941	.7	0.7748
.6	0.8353	42.0	0.8140	.4	0.7937	.8	0.7743
.7	0.8348	.1	0.8135	.5	0.7932	.9	0.7739
.8	0.8343	.2	0.8130	.6	0.7928	51.0	0.7735
.9	0.8338	.3	0.8125	.7	0.7923	.1	0.7731
38.0	0.8333	.4	0.8121	.8	0.7919	.2	0.7726
.1	0.8328	.5	0.8116	.9	0.7914	.3	0.7722
.2	0.8323	.6	0.8111	47.0	0.7910	.4	0.5718
.3	0.8318	.7	0.8107	.1	0.7905	.5	0.7713
.4	0.8314	.8	0.8102	.2	0.7901	.6	0.7709
.5	0.8309	.9	0.8097	.3	0.7896	.7	0.7705
.6	0.8304	43.0	0.8092	.4	0.7892	.8	0.7701
.7	0.8299	.1	0.8088	.5	0.7887	.9	0.7697
.8	0.8294	.2	0.8083	.6	0.7883	52.0	0.7692
.9	0.8289	.3	0.8078	.7	0.7878	.1	0.7688
39.0	0.8284	.4	0.8074	.8	0.7874	.2	0.7684
.1	0.8279	.5	0.8069	.9	0.7870	.3	0.7680
.2	0.8274	.6	0.8065	48.0	0.7865	.4	0.7675
.3	0.8269	.7	0.8060	.1	0.7861	.5	0.7671
.4	0.8264	.8	0.8055	.2	0.7856	.6	0.7667
.5	0.8260	.9	0.8051	.3	0.7852	.7	0.7663
.6	0.8255	44.0	0.8046	.4	0.7848	.8	0.7659
.7	0.8250	.1	0.8041	.5	0.7843	.9	0.7654
.8	0.8245	.2	0.8037	.6	0.7839	53.0	0.7650
.9	0.8240	.3	0.8032	.7	0.7834	.1	0.7646
40.0	0.8235	.4	0.8028	.8	0.7830	.2	0.7642
.1	0.8230	.5	0.8023	.9	0.7826	.3	0.7638
.2	0.8226	.6	0.8018	49.0	0.7821	.4	0.7634
.3	0.8221	.7	0.8014	.1	0.7817	.5	0.7629
.4	0.8216	.8	0.8009	.2	0.7812	.6	0.7625
.5	0.8211	.9	0.8005	.3	0.7808	.7	0.7621
.6	0.8206	45.0	0.8000	.4	0.7804	.8	0.7617
.7	0.8202	.1	0.7995	.5	0.7799	.9	0.7613

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
54.0	0.7609	.4	0.7431	.8	0.7261	.2	0.7099
.1	0.7605	.5	0.7427	.9	0.7258	.3	0.7096
.2	0.7600	.6	0.7423	63.0	0.7254	.4	0.7092
.3	0.7596	.7	0.7419	.1	0.7250	.5	0.7089
.4	0.7592	.8	0.7415	.2	0.7246	.6	0.7085
.5	0.7588	.9	0.7411	.3	0.7243	.7	0.7081
.6	0.7584	59.0	0.7407	.4	0.7239	.8	0.7078
.7	0.7580	.1	0.7403	.5	0.7235	.9	0.7074
.8	0.7576	.2	0.7400	.6	0.7231	68.0	0.7071
.9	0.7572	.3	0.7396	.7	0.7228	.1	0.7067
55.0	0.7568	.4	0.7392	.8	0.7224	.2	0.7064
.1	0.7563	.5	0.7388	.9	0.7220	.3	0.7060
.2	0.7559	.8	0.7384	64.0	0.7216	.4	0.7056
.3	0.7555	.7	0.7380	.1	0.7213	.5	0.7053
.4	0.7551	.8	0.7376	.2	0.7209	.6	0.7049
.5	0.7547	.9	0.7372	.3	0.7205	.7	0.7046
.6	0.7543	60.0	0.7368	.4	0.7202	.8	0.7042
.7	0.7539	.1	0.7365	.5	0.7198	.9	0.7039
.8	0.7535	.2	0.7361	.6	0.7194	69.0	0.7035
.9	0.7531	.3	0.7357	.7	0.7191	.1	0.7032
56.0	0.7527	.4	0.7353	.8	0.7187	.2	0.7028
.1	0.7523	.5	0.7349	.9	0.7183	.3	0.7025
.2	0.7519	.6	0.7345	65.0	0.7179	.4	0.7021
.3	0.7515	.7	0.7341	.1	0.7176	.5	0.7018
.4	0.7511	.8	0.7338	.2	0.7172	.6	0.7014
.5	0.7507	.9	0.7334	.3	0.7168	.7	0.7011
.6	0.7503	61.0	0.7330	.4	0.7165	.8	0.7007
.7	0.75	.1	0.7326	.5	0.7161	.9	0.7004
.8	0.7495	.2	0.7322	.6	0.7157	70.0	0.7000
.9	0.7491	.3	0.7318	.7	0.7154	.1	0.6997
57.0	0.7487	.4	0.7315	.8	0.7150	.2	0.6993
.1	0.7483	.5	0.7311	.9	0.7147	.3	0.6990
.2	0.7479	.6	0.7307	66.0	0.7143	.4	0.6986
.3	0.7475	.7	0.7303	.1	0.7139	.5	0.6983
.4	0.7471	.8	0.7299	.2	0.7136	.6	0.6979
.5	0.7467	.9	0.7295	.3	0.7132	.7	0.6976
.6	0.7463	62.0	0.7292	.4	0.7128	.8	0.6972
.7	0.7459	.1	0.7288	.5	0.7125	.9	0.6969
.8	0.7455	.2	0.7284	.6	0.7121	71.0	0.6965
.9	0.7451	.3	0.7280	.7	0.7117	.1	0.6962
58.0	0.7447	.4	0.7277	.8	0.7114	.2	0.6958
.1	0.7443	.5	0.7273	.9	0.7110	.3	0.6955
.2	0.7439	.6	0.7269	67.0	0.7107	.4	0.6951
.3	0.7435	.7	0.7265	.1	0.7103	.5	0.6948

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.6	0.6944	.8	0.6869	.9	0.6799	78.0	0.6731
.7	0.6941	.9	0.6866	76.0	0.6796	.1	0.6728
.8	0.6938	74.0	0.6863	.1	0.6793	.2	0.6724
.9	0.6934	.1	0.6859	.2	0.6790	.3	0.6721
72.0	0.6931	.2	0.6856	.3	0.6786	.4	0.6718
.1	0.6927	.3	0.6853	.4	0.6783	.5	0.6715
.2	0.6924	.4	0.6849	.5	0.6780	.6	0.6711
.3	0.6920	.5	0.6846	.6	0.6776	.7	0.6708
.4	0.6917	.6	0.6843	.7	0.6773	.8	0.6705
.5	0.6914	.7	0.6839	.8	0.6770	.9	0.6702
.6	0.6910	.8	0.6836	.9	0.6767	79.0	0.6699
.7	0.6907	.9	0.6833	77.0	0.6763	.1	0.6695
.8	0.6903	75.0	0.6829	.1	0.6760	.2	0.6692
.9	0.6900	.1	0.6826	.2	0.6757	.3	0.6689
73.0	0.6897	.2	0.6823	.3	0.6753	.4	0.6686
.1	0.6893	.3	0.6819	.4	0.6750	.5	0.6683
.2	0.6890	.4	0.6816	.5	0.6747	.6	0.6679
.3	0.6886	.5	0.6813	.6	0.6744	.7	0.6676
.4	0.6883	.6	0.6809	.7	0.6740	.8	0.6673
.5	0.6880	.7	0.6806	.8	0.6737	.9	0.6670
.6	0.6876	.8	0.6803	.9	0.6734	80.0	0.6667
.7	0.6873						

**XXVIII**

**SULPHURIC ACID**

**BY FERGUSON AND TALBOT**

**STANDARD TABLE OF THE MANUFACTURING CHEMISTS' ASSOCIATION  
OF THE UNITED STATES**

XXVIII.—SUL

By W. C. FERGUSON

Degrees Baumé.	Specific Gravity 60° 60° F.	Degrees Twaddell.	Per Cent H <sub>2</sub> SO <sub>4</sub> .	Weight of 1 Cu. Ft. in Lbs. Av.	Per Cent O. V.	Pounds O. V. in 1 Cubic Foot.
0	1.0000	0.0	0.00	62.37	0.00	0.00
1	1.0069	1.4	1.02	62.80	1.09	0.68
2	1.0140	2.8	2.08	63.24	2.23	1.41
3	1.0211	4.2	3.13	63.69	3.36	2.14
4	1.0284	5.7	4.21	64.14	4.52	2.90
5	1.0357	7.1	5.28	64.60	5.67	3.66
6	1.0432	8.6	6.37	65.06	6.84	4.45
7	1.0507	10.1	7.45	65.53	7.99	5.24
8	1.0584	11.7	8.55	66.01	9.17	6.06
9	1.0662	13.2	9.66	66.50	10.37	6.89
10	1.0741	14.8	10.77	66.99	11.56	7.74
11	1.0821	16.4	11.89	67.49	12.76	8.61
12	1.0902	18.0	13.01	68.00	13.96	9.49
13	1.0985	19.7	14.13	68.51	15.16	10.39
14	1.1069	21.4	15.25	69.04	16.36	11.30
15	1.1154	23.1	16.38	69.57	17.58	12.23
16	1.1240	24.8	17.53	70.10	18.81	13.19
17	1.1328	26.6	18.71	70.65	20.08	14.18
18	1.1417	28.3	19.89	71.21	21.34	15.20
19	1.1508	30.2	21.07	71.78	22.61	16.23
20	1.1600	32.0	22.25	72.35	23.87	17.27
21	1.1694	33.9	23.43	72.94	25.14	18.34
22	1.1789	35.8	24.61	73.53	26.41	19.42
23	1.1885	37.7	25.81	74.13	27.69	20.53
24	1.1983	39.7	27.03	74.74	29.00	21.68

Sp. Gr. determinations were made at 60° F., compared with water at 60° F.

From the Sp. Grs., the corresponding degrees Baumé were calculated by the following formula: Baumé = 145 - 145/Sp. Gr.

Baumé Hydrometers for use with this table must be graduated by the above formula, which formula should always be printed on the scale.

66° Baumé = Sp. Gr. 1.8354.

1 cu. ft. water at 60° F. weighs 62.37 lbs. av.

Atomic weights from F. W. Clarke's table of 1901. O = 16.

H<sub>2</sub>SO<sub>4</sub> = 100 per cent.

	% H <sub>2</sub> SO <sub>4</sub>	% O. V.	% 60°
O. V.	= 93.19	= 100.00	= 119.98
60°	= 77.67	= 83.35	= 100.00
50°	= 62.18	= 66.72	= 80.06

PHURIC ACID

AND H. P. TALBOT

Degrees Baumé.	* Freezing (Melting) Point. F.	APPROXIMATE BOILING POINTS			
		50° B,	295° F.		
		60° "	386° "		
		61° "	400° "		
		62° "	415° "		
		63° "	432° "		
		64° "	451° "		
		65° "	485° "		
		66° "	538° "		
		FIXED POINTS			
		Specific Gravity.	Per Cent H <sub>2</sub> SO <sub>4</sub> .	Specific Gravity.	Per Cent H <sub>2</sub> SO <sub>4</sub> .
0	32.0				
1	31.2				
2	30.5				
3	29.8				
4	28.9				
5	28.1				
6	27.2				
7	26.3				
8	25.1				
9	24.0				
10	22.8				
11	21.5	1.0000	.00	1.5281	62.34
12	20.0	1.0048	.71	1.5440	63.79
13	18.3	1.0347	5.14	1.5748	66.51
14	16.6	1.0649	9.48	1.6272	71.00
15	14.7	1.0992	14.22	1.6679	74.46
16	12.6	1.1353	19.04	1.7044	77.54
17	10.2	1.1736	23.94	1.7258	79.40
18	7.7	1.2105	28.55	1.7472	81.32
19	4.8	1.2513	33.49	1.7700	83.47
		1.2951	38.64	1.7959	86.36
20	+ 1.6	1.3441	44.15	1.8117	88.53
21	- 1.8	1.3947	49.52	1.8194	89.75
22	- 6.0	1.4307	53.17	1.8275	91.32
23	-11	1.4667	56.68	1.8354	93.19
24	-16	1.4822	58.14		

Acids stronger than 66° Bé. should have their percentage compositions determined by chemical analysis.

\* Calculated from Pickering's results, Jour. of Lon. Ch. Soc., vol. 57, p. 363.

AUTHORITIES — W. C. FERGUSON; H. P. TALBOT.

This table has been approved and adopted as a standard by the Manufacturing Chemists' Association of the United States.

W. H. BOWER,  
HENRY HOWARD,  
JAS. L. MORGAN,  
ARTHUR WYMAN,  
A. G. ROSENGARTEN,  
*Executive Committee.*

New York, June 23, 1904.

Degrees Baumé.	Specific Gravity 60° F.	Degrees Twaddell.	Per Cent H <sub>2</sub> SO <sub>4</sub> .	Weight of 1 Cu. Ft. in Lbs. Av.	Per Cent O. V.	Pounds O. V. in 1 Cubic Foot.
25	1.2083	41.7	28.28	75.36	30.34	22.87
26	1.2185	43.7	29.53	76.00	31.69	24.08
27	1.2288	45.8	30.79	76.64	33.04	25.32
28	1.2393	47.9	32.05	77.30	34.39	26.58
29	1.2500	50.0	33.33	77.96	35.76	27.88
30	1.2609	52.2	34.63	78.64	37.16	29.22
31	1.2719	54.4	35.93	79.33	38.55	30.58
32	1.2832	56.6	37.26	80.03	39.98	32.00
33	1.2946	58.9	38.58	80.74	41.40	33.42
34	1.3063	61.3	39.92	81.47	42.83	34.90
35	1.3182	63.6	41.27	82.22	44.28	36.41
36	1.3303	66.1	42.63	82.97	45.74	37.95
37	1.3426	68.5	43.99	83.74	47.20	39.53
38	1.3551	71.0	45.35	84.52	48.66	41.13
39	1.3679	73.6	46.72	85.32	50.13	42.77
40	1.3810	76.2	48.10	86.13	51.61	44.45
41	1.3942	78.8	49.47	86.96	53.08	46.16
42	1.4078	81.6	50.87	87.80	54.58	47.92
43	1.4216	84.3	52.26	88.67	56.07	49.72
44	1.4356	87.1	53.66	89.54	57.58	51.56
45	1.4500	90.0	55.07	90.44	59.09	53.44
46	1.4646	92.9	56.48	91.35	60.60	55.36
47	1.4796	95.9	57.90	92.28	62.13	57.33
48	1.4948	99.0	59.32	93.23	63.65	59.34
49	1.5104	102.1	60.75	94.20	65.18	61.40
50	1.5263	105.3	62.18	95.20	66.72	63.52
51	1.5426	108.5	63.66	96.21	68.31	65.72
52	1.5591	111.8	65.13	97.24	69.89	67.96
53	1.5761	115.2	66.63	98.30	71.50	70.28
54	1.5934	118.7	68.13	99.38	73.11	72.66
55	1.6111	122.2	69.65	100.48	74.74	75.10
56	1.6292	125.8	71.17	101.61	76.37	77.60
57	1.6477	129.5	72.75	102.77	78.07	80.23
58	1.6667	133.3	74.36	103.95	79.79	82.95
59	1.6860	137.2	75.99	105.16	81.54	85.75



Degrees Baumé.	* Freezing (Melting) Point. °F.	ALLOWANCE FOR TEMPERATURE			
25	— 23				
26	— 30	At 10° Bé. .029° Bé. or .00023 Sp. Gr. = 1° F.			
27	— 39	“ 20° “ .036° “ .00034 “ = 1° “			
28	— 49	“ 30° “ .035° “ .00039 “ = 1° “			
29	— 61	“ 40° “ .031° “ .00041 “ = 1° “			
		“ 50° “ .028° “ .00045 “ = 1° “			
30	— 74	“ 60° “ .026° “ .00053 “ = 1° “			
31	— 82	“ 63° “ .026° “ .00057 “ = 1° “			
32	— 96	“ 66° “ .0235° “ .00054 “ = 1° “			
33	— 97				
34	— 91				
35	— 81				
36	— 70				
37	— 60				
38	— 53				
39	— 47				
		Per Cent 60° Baumé.	Pounds 60° Baumé in 1 Cubic Foot.	Per Cent 50° Baumé.	Pounds 50° Baumé in 1 Cubic Foot.
40	— 41	61.93	53.34	77.36	66.63
41	— 35	63.69	55.39	79.56	69.19
42	— 31	65.50	57.50	81.81	71.83
43	— 27	67.28	59.66	84.05	74.53
44	— 23	69.09	61.86	86.30	77.27
45	— 20	70.90	64.12	88.56	80.10
46	— 14	72.72	66.43	90.83	82.98
47	— 15	74.55	68.79	93.12	85.93
48	— 18	76.37	71.20	95.40	88.94
49	— 22	78.22	73.68	97.70	92.03
50	— 27	80.06	76.21	100.00	95.20
51	— 33	81.96	78.85	102.38	98.50
52	— 39	83.86	81.54	104.74	101.85
53	— 49	85.79	84.33	107.15	105.33
54	— 59	87.72	87.17	109.57	108.89
55	..	89.67	90.10	112.01	112.55
56	..	91.63	93.11	114.46	116.30
57	..	93.67	96.26	117.00	120.24
58	..	95.74	99.52	119.59	124.31
59	— 7	97.84	102.89	122.21	128.52

Degrees Baumé.	Specific Gravity 60° F. 60° F.	Degrees Twaddell.	Per Cent H <sub>2</sub> SO <sub>4</sub> .	Weight of 1 Cu. Ft. in Lbs. Av.	Per Cent O. V.	Pounds O. V. in 1 Cubic Foot.
60	1.7059	141.2	77.67	106.40	83.35	88.68
61	1.7262	145.2	79.43	107.66	85.23	91.76
62	1.7470	149.4	81.30	108.96	87.24	95.06
63	1.7683	153.7	83.34	110.29	89.43	98.63
64	1.7901	158.0	85.66	111.65	91.92	102.63
64½	1.7957	159.1	86.33	112.00	92.64	103.75
64¾	1.8012	160.2	87.04	112.34	93.40	104.93
64½	1.8068	161.4	87.81	112.69	94.23	106.19
65	1.8125	162.5	88.65	113.05	95.13	107.54
65½	1.8182	163.6	89.55	113.40	96.10	108.97
65½	1.8239	164.8	90.60	113.76	97.22	110.60
65¾	1.8297	165.9	91.80	114.12	98.51	112.42
66	1.8354	167.1	93.19	114.47	100.00	114.47

XXIX. — FUMING SULPHURIC ACID AT 20°

CL. WINKLER

Specific Gravity.	Total SO <sub>3</sub> .	100 Parts Contain			Specific Gravity.	Total SO <sub>3</sub> .	100 Parts Contain		
		Free SO <sub>3</sub> *.	H <sub>2</sub> SO <sub>4</sub>	Acid of 66° B.			Free SO <sub>3</sub> *.	H <sub>2</sub> SO <sub>4</sub>	Acid of 66° B.
1.835	75.31		92.25	99	1.905	83.57	10.56	89.44	65.68
1.840	77.38		94.79	90.69	1.910	83.73	11.43	88.57	65.25
1.845	79.28		97.11	83.08	1.915	84.08	13.33	86.67	63.84
1.850	80.01		98.01	80.10	1.920	84.56	15.95	84.05	62.10
1.855	80.95		99.16	76.38	1.925	85.06	18.67	81.33	59.90
1.860	81.84	1.54	98.46	72.81	1.930	85.57	21.34	78.66	57.86
1.865	82.12	2.66	97.34	71.71	1.935	86.23	25.65	74.35	55.21
1.870	82.41	4.28	95.76	70.53	1.940	86.78	28.03	71.97	53.00
1.875	82.63	5.44	94.56	69.35	1.945	87.13	29.94	70.06	51.60
1.880	82.81	6.42	93.58	68.92	1.950	87.41	31.46	63.54	50.48
1.885	82.97	7.29	92.71	68.27	1.955	87.65	32.77	67.23	49.52
1.890	83.13	8.16	91.94	67.55	1.960	88.22	35.87	64.13	47.23
1.895	83.43	9.34	90.66	66.81	1.965	88.92	39.68	60.32	44.42
1.900	83.48	10.07	89.93	66.24	1.970	89.83	44.64	55.36	40.78

\* This column gives the amount of SO<sub>3</sub> which may be distilled off.

Degrees Baumé.	* Freezing (Melting) Point.	Per Cent 60° Baumé.	Pounds 60° Baumé in 1 Cubic Foot.	Per Cent 50° Baumé.	Pounds 50° Baumé in 1 Cubic Foot.	
60	+12.6	100.00	106.40	124.91	132.91	
61	27.3	102.27	110.10	127.74	137.52	
62	39.1	104.67	114.05	130.75	142.47	
63	46.1	107.30	118.34	134.03	147.82	
64	46.4	110.29	123.14	137.76	153.81	
64½	43.6	111.15	124.49	138.84	155.50	
64½	41.1	112.06	125.89	139.98	157.25	
64½	37.9	113.05	127.40	141.22	159.14	
65	33.1	114.14	129.03	142.57	161.17	
65½	24.6	115.30	130.75	144.02	163.32	
65½	13.4	116.65	132.70	145.71	165.76	
65½	— 1	118.19	134.88	147.63	168.48	
66	—29	119.98	137.34	149.87	171.56	

XXX. — SULPHURIC ACID

LUNGE AND ISLER

Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in vacuo	100 parts by weight correspond to		1 liter contains grams		Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in vacuo	100 parts by weight correspond to		1 liter contains grams	
	% SO <sub>3</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>		% SO <sub>3</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>
1.000	0.07	0.09	1	1	1.190	21.26	26.04	253	310
1.005	0.68	0.83	7	8	1.195	21.78	26.68	260	319
1.010	1.28	1.57	13	16	1.200	22.30	27.32	268	328
1.015	1.88	2.30	19	23	1.205	22.82	27.95	275	337
1.020	2.47	3.03	25	31	1.210	23.33	28.58	282	346
1.025	3.07	3.76	32	39	1.215	23.84	29.21	290	355
1.030	3.67	4.49	38	46	1.220	24.36	29.84	297	364
1.035	4.27	5.23	44	54	1.225	24.88	30.48	305	373
1.040	4.87	5.96	51	62	1.230	25.39	31.11	312	382
1.045	5.45	6.67	57	71	1.235	25.88	31.70	320	391
1.050	6.02	7.37	63	77	1.240	26.35	32.28	327	400
1.055	6.59	8.07	70	85	1.245	26.83	32.86	334	409
1.060	7.16	8.77	76	93	1.250	27.29	33.43	341	418
1.065	7.73	9.47	82	102	1.255	27.76	34.00	348	426
1.070	8.32	10.19	89	109	1.260	28.22	34.57	356	435
1.075	8.90	10.90	96	117	1.265	28.69	35.14	363	444
1.080	9.47	11.60	103	125	1.270	29.15	35.71	370	454
1.085	10.04	12.30	109	133	1.275	29.62	36.29	377	462
1.090	10.60	12.99	116	142	1.280	30.10	36.87	385	472
1.095	11.16	13.67	122	150	1.285	30.57	37.45	393	481
1.100	11.71	14.35	129	158	1.290	31.04	38.03	400	490
1.105	12.27	15.03	136	166	1.295	31.52	38.61	408	500
1.110	12.82	15.71	143	175	1.300	31.99	39.19	416	510
1.115	13.36	16.36	149	183	1.305	32.46	39.77	424	519
1.120	13.89	17.01	156	191	1.310	32.94	40.35	432	529
1.125	14.42	17.66	162	199	1.315	33.41	40.93	439	538
1.130	14.95	18.31	169	207	1.320	33.88	41.50	447	548
1.135	15.48	18.96	176	215	1.325	34.35	42.08	455	557
1.140	16.01	19.61	183	223	1.330	34.80	42.66	462	567
1.145	16.54	20.26	189	231	1.335	35.27	43.20	471	577
1.150	17.07	20.91	196	239	1.340	35.71	43.74	479	586
1.155	17.59	21.55	203	248	1.345	36.14	44.28	486	596
1.160	18.11	22.19	210	257	1.350	36.58	44.82	494	605
1.165	18.64	22.83	217	266	1.355	37.02	45.35	502	614
1.170	19.16	23.47	224	275	1.360	37.45	45.88	509	624
1.175	19.69	24.12	231	283	1.365	37.89	46.41	517	633
1.180	20.21	24.76	238	292	1.370	38.32	46.94	525	643
1.185	20.73	25.40	246	301	1.375	38.75	47.47	533	653

Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in vacuo	100 parts by weight correspond to		1 liter contains grams		Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in vacuo	100 parts by weight correspond to		1 liter contains grams	
	% SO <sub>2</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>2</sub>	H <sub>2</sub> SO <sub>4</sub>		% SO <sub>2</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>2</sub>	H <sub>2</sub> SO <sub>4</sub>
1.380	39.18	48.00	541	662	1.590	55.18	67.59	877	1075
1.385	39.62	48.53	549	672	1.595	55.55	68.05	886	1085
1.390	40.05	49.06	557	682	1.600	55.93	68.51	89	1096
1.395	40.48	49.59	564	692	1.605	56.30	68.97	904	1107
1.400	40.91	50.11	573	702	1.610	56.68	69.43	913	1118
1.405	41.33	50.63	581	711	1.615	57.05	69.89	921	1128
1.410	41.76	51.15	589	721	1.620	57.40	70.32	930	1139
1.415	42.17	51.66	597	730	1.625	57.75	70.74	938	1150
1.420	42.57	52.15	604	740	1.630	58.09	71.16	947	1160
1.425	42.96	52.63	612	750	1.635	58.43	71.57	955	1170
1.430	43.36	53.11	620	759	1.640	58.77	71.99	964	1181
1.435	43.75	53.59	628	769	1.645	59.10	72.40	972	1192
1.440	44.14	54.07	636	779	1.650	59.45	72.82	981	1202
1.445	44.53	54.55	643	789	1.655	59.78	73.23	989	1212
1.450	44.92	55.03	651	798	1.660	60.11	73.64	998	1222
1.455	45.31	55.50	659	808	1.665	60.46	74.07	1007	1233
1.460	45.69	55.97	667	817	1.670	60.82	74.51	1016	1244
1.465	46.07	56.43	675	827	1.675	61.20	74.97	1025	1256
1.470	46.45	56.90	683	837	1.680	61.57	75.42	1034	1267
1.475	46.83	57.37	691	846	1.685	61.93	75.86	1043	1278
1.480	47.21	57.83	699	856	1.690	62.29	76.30	1053	1289
1.485	47.57	58.28	707	865	1.695	62.64	76.73	1062	1301
1.490	47.95	58.74	715	876	1.700	63.00	77.17	1071	1312
1.495	48.34	59.22	723	885	1.705	63.35	77.60	1080	1323
1.500	48.73	59.70	731	896	1.710	63.70	78.04	1089	1334
1.505	49.12	60.18	739	906	1.715	64.07	78.48	1099	1346
1.510	49.51	60.65	748	916	1.720	64.43	78.92	1108	1357
1.515	49.89	61.12	756	926	1.725	64.78	79.36	1118	1369
1.520	50.28	61.59	764	936	1.730	65.14	79.80	1127	1381
1.525	50.66	62.06	773	946	1.735	65.50	80.24	1136	1392
1.530	51.04	62.53	781	957	1.740	65.86	80.68	1146	1404
1.535	51.43	63.00	789	967	1.745	66.22	81.12	1156	1416
1.540	51.78	63.43	797	977	1.750	66.58	81.56	1165	1427
1.545	52.12	63.85	805	987	1.755	66.94	82.00	1175	1439
1.550	52.46	64.26	813	996	1.760	67.30	82.44	1185	1451
1.555	52.79	64.67	821	1006	1.765	67.65	82.88	1194	1463
1.560	53.12	65.08	829	1015	1.770	68.02	83.32	1204	1475
1.565	53.46	65.49	837	1025	1.775	68.49	83.90	1216	1489
1.570	53.80	65.90	845	1035	1.780	68.98	84.50	1228	1504
1.575	54.13	66.30	853	1044	1.785	69.47	85.10	1240	1519
1.580	54.46	66.71	861	1054	1.790	69.96	85.70	1252	1534
1.585	54.80	67.13	869	1064	1.795	70.46	86.30	1265	1549

Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in vacuo	100 parts by weight correspond to		1 liter contains grams		Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in vacuo	100 parts by weight correspond to		1 liter contains grams	
	% SO <sub>2</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>2</sub>	H <sub>2</sub> SO <sub>4</sub>		% SO <sub>2</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>2</sub>	H <sub>2</sub> SO <sub>4</sub>
1.800	70.94	86.90	1277	1564	1.833	75.72	92.75	1388	1700
1.805	71.50	87.60	1291	1581	1.834	75.96	93.05	1393	1706
1.810	72.08	88.30	1305	1598	1.835	76.27	93.43	1400	1713
1.815	72.69	89.05	1319	1621	1.836	76.57	93.80	1405	1722
1.820	73.51	90.05	1338	1639	1.837	76.90	94.20	1412	1730
1.821	73.63	90.20	1341	1643	1.838	77.23	94.60	1419	1739
1.822	73.80	90.40	1345	1647	1.839	77.55	95.00	1426	1748
1.823	73.96	90.60	1348	1651	1.840	78.04	95.60	1436	1759
1.824	74.12	90.80	1352	1656	1.8405	78.33	95.95	1441	1765
1.825	74.29	91.00	1356	1661	1.8410	79.19	97.00	1458	1786
1.826	74.49	91.25	1360	1666	1.8415	79.76	97.70	1469	1799
1.827	74.69	91.50	1364	1671	1.8410	80.16	98.20	1476	1808
1.828	74.86	91.70	1368	1676	1.8405	80.57	98.70	1483	1816
1.829	75.03	91.90	1372	1681	1.8400	80.98	99.20	1490	1825
1.830	75.19	92.10	1376	1685	1.8395	81.18	99.45	1494	1830
1.831	75.35	92.30	1380	1690	1.8390	81.39	99.70	1497	1834
1.832	75.53	92.52	1384	1695	1.8385	81.59	99.95	1500	1838

4203

# XXXI. — PERCENTAGE OF SULPHUR TRIOXIDE AND SULPHURIC ACID IN FUMING SULPHURIC ACID

GNEHM

Total SO <sub>3</sub> as found by titration.	The acid contains %		Total SO <sub>3</sub> as found by titration.	The acid contains %		Total SO <sub>3</sub> as found by titration.	The acid contains %	
	H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>		H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>		H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>
81.8326	100	0	87.8775	66	34	93.9389	33	67
81.8163	99	1	88.0612	65	35	94.1224	32	68
82.0000	98	2	88.2448	64	36	94.3061	31	69
82.1836	97	3	88.4285	63	37	94.4897	30	70
82.3674	96	4	88.6122	62	38	94.6734	29	71
82.5510	95	5	88.7959	61	39	94.8571	28	72
82.7346	94	6	88.9795	60	40	95.0408	27	73
82.9183	93	7	89.1632	59	41	95.2244	26	74
83.1020	92	8	89.3469	58	42	95.4081	25	75
83.2857	91	9	89.5306	57	43	95.5918	24	76
83.4693	90	10	89.7142	56	44	95.7755	23	77
83.6530	89	11	89.8979	55	45	95.9591	22	78
83.8367	88	12	90.0816	54	46	96.1428	21	79
84.0204	87	13	90.2653	53	47	96.3265	20	80
84.2040	86	14	90.4489	52	48	96.5102	19	81
84.3877	85	15	90.6326	51	49	96.6938	18	82
84.5714	84	16	90.8163	50	50	96.8775	17	83
84.7551	83	17	91.0000	49	51	97.0612	16	84
84.9387	82	18	91.1836	48	52	97.2448	15	85
85.1224	81	19	91.3673	47	53	97.4285	14	86
85.3061	80	20	91.5510	46	54	97.6122	13	87
85.4897	79	21	91.7346	45	55	97.7959	12	88
85.6734	78	22	91.9183	44	56	97.9795	11	89
85.8571	77	23	92.1020	43	57	98.1632	10	90
86.0408	76	24	92.2857	42	58	98.3469	9	91
86.2244	75	25	92.4693	41	59	98.5306	8	92
86.4081	74	26	92.6530	40	60	98.7142	7	93
86.5918	73	27	92.8367	39	61	98.8979	6	94
86.7755	72	28	93.0204	38	62	99.0816	5	95
86.9591	71	29	93.2040	37	63	99.2753	4	96
87.1428	70	30	93.3877	36	64	99.4489	3	97
87.3265	69	31	93.5714	35	65	99.6326	2	98
87.5102	68	32	93.7551	34	66	99.8163	1	99
87.6938	67	33						

# XXXII. — NITRIC ACID

By W. C. FERGUSON

Degrees Baumé.	Sp. Gr. 60° F.	Degrees Twaddell.	Per Cent HNO <sub>3</sub> .	Degrees Baumé.	Sp. Gr. 60° F.	Degrees Twaddell.	Per Cent HNO <sub>3</sub> .
10.00	1.0741	14.82	12.86	21.25	1.1718	34.36	28.02
10.25	1.0761	15.22	13.18	21.50	1.1741	34.82	28.36
10.50	1.0781	15.62	13.49	21.75	1.1765	35.30	28.72
10.75	1.0801	16.02	13.81	22.00	1.1789	35.78	29.07
11.00	1.0821	16.42	14.13	22.25	1.1813	36.26	29.43
11.25	1.0841	16.82	14.44	22.50	1.1837	36.74	29.78
11.50	1.0861	17.22	14.76	22.75	1.1861	37.22	30.14
11.75	1.0881	17.62	15.07	23.00	1.1885	37.70	30.49
12.00	1.0902	18.04	15.41	23.25	1.1910	38.20	30.86
12.25	1.0922	18.44	15.72	23.50	1.1934	38.68	31.21
12.50	1.0943	18.86	16.05	23.75	1.1959	39.18	31.58
12.75	1.0964	19.28	16.39	24.00	1.1983	39.66	31.94
13.00	1.0985	19.70	16.72	24.25	1.2008	40.16	32.31
13.25	1.1006	20.12	17.05	24.50	1.2033	40.66	32.68
13.50	1.1027	20.54	17.38	24.75	1.2058	41.16	33.05
13.75	1.1048	20.96	17.71	25.00	1.2083	41.66	33.42
14.00	1.1069	21.38	18.04	25.25	1.2109	42.18	33.80
14.25	1.1090	21.80	18.37	25.50	1.2134	42.68	34.17
14.50	1.1111	22.22	18.70	25.75	1.2160	43.20	34.56
14.75	1.1132	22.64	19.02	26.00	1.2185	43.70	34.94
15.00	1.1154	23.08	19.36	26.25	1.2211	44.22	35.33
15.25	1.1176	23.52	19.70	26.50	1.2236	44.72	35.70
15.50	1.1197	23.94	20.02	26.75	1.2262	45.24	36.09
15.75	1.1219	24.38	20.36	27.00	1.2288	45.76	36.48
16.00	1.1240	24.80	20.69	27.25	1.2314	46.28	36.87
16.25	1.1262	25.24	21.03	27.50	1.2340	46.80	37.26
16.50	1.1284	25.68	21.36	27.75	1.2367	47.34	37.67
16.75	1.1306	26.12	21.70	28.00	1.2393	47.86	38.06
17.00	1.1328	26.56	22.04	28.25	1.2420	48.40	38.46
17.25	1.1350	27.00	22.38	28.50	1.2446	48.92	38.85
17.50	1.1373	27.46	22.74	28.75	1.2473	49.46	39.25
17.75	1.1395	27.90	23.08	29.00	1.2500	50.00	39.66
18.00	1.1417	28.34	23.42	29.25	1.2527	50.54	40.06
18.25	1.1440	28.80	23.77	29.50	1.2554	51.08	40.47
18.50	1.1462	29.24	24.11	29.75	1.2582	51.64	40.89
18.75	1.1485	29.70	24.47	30.00	1.2609	52.18	41.30
19.00	1.1508	30.16	24.82	30.25	1.2637	52.74	41.72
19.25	1.1531	30.62	25.18	30.50	1.2664	53.28	42.14
19.50	1.1554	31.08	25.53	30.75	1.2692	53.84	42.58
19.75	1.1577	31.54	25.88	31.00	1.2719	54.38	43.00
20.00	1.1600	32.00	26.24	31.25	1.2747	54.94	43.44
20.25	1.1624	32.48	26.61	31.50	1.2775	55.50	43.89
20.50	1.1647	32.94	26.96	31.75	1.2804	56.08	44.34
20.75	1.1671	33.42	27.33	32.00	1.2832	56.64	44.78
21.00	1.1694	33.88	27.67	32.25	1.2861	57.22	45.24



Degrees Baumé.	Sp. Gr. 60° F.	Degrees Twaddell.	Per Cent HNO <sub>3</sub> .	Degrees Baumé.	Sp. Gr. 60° F.	Degrees Twaddell.	Per Cent HNO <sub>3</sub> .
32.50	1.2889	57.78	45.68	40.75	1.3909	78.18	63.48
32.75	1.2918	58.36	46.14	41.00	1.3942	78.84	64.20
33.00	1.2946	58.92	46.58	41.25	1.3976	79.52	64.93
33.25	1.2975	59.50	47.04	41.50	1.4010	80.20	65.67
33.50	1.3004	60.08	47.49	41.75	1.4044	80.88	66.42
33.75	1.3034	60.68	47.95	42.00	1.4078	81.56	67.18
34.00	1.3063	61.26	48.42	42.25	1.4112	82.24	67.95
34.25	1.3093	61.86	48.90	42.50	1.4146	82.92	68.73
34.50	1.3122	62.44	49.35	42.75	1.4181	83.62	69.52
34.75	1.3152	63.04	49.83	43.00	1.4216	84.32	70.33
35.00	1.3182	63.64	50.32	43.25	1.4251	85.02	71.15
35.25	1.3212	64.24	50.81	43.50	1.4286	85.72	71.98
35.50	1.3242	64.84	51.30	43.75	1.4321	86.42	72.82
35.75	1.3273	65.46	51.80	44.00	1.4356	87.12	73.67
36.00	1.3303	66.06	52.30	44.25	1.4392	87.84	74.53
36.25	1.3334	66.68	52.81	44.50	1.4428	88.56	75.40
36.50	1.3364	67.28	53.32	44.75	1.4464	89.28	76.28
36.75	1.3395	67.90	53.84	45.00	1.4500	90.00	77.17
37.00	1.3426	68.52	54.36	45.25	1.4536	90.72	78.07
37.25	1.3457	69.14	54.89	45.50	1.4573	91.46	79.03
37.50	1.3488	69.76	55.43	45.75	1.4610	92.20	80.04
37.75	1.3520	70.40	55.97	46.00	1.4646	92.92	81.08
38.00	1.3551	71.02	56.52	46.25	1.4684	93.68	82.18
38.25	1.3583	71.66	57.08	46.50	1.4721	94.42	83.33
38.50	1.3615	72.30	57.65	46.75	1.4758	95.16	84.48
38.75	1.3647	72.94	58.23	47.00	1.4796	95.92	85.70
39.00	1.3679	73.58	58.82	47.25	1.4834	96.68	86.98
39.25	1.3712	74.24	59.43	47.50	1.4872	97.44	88.32
39.50	1.3744	74.88	60.06	47.75	1.4910	98.20	89.76
39.75	1.3777	75.54	60.71	48.00	1.4948	98.96	91.35
40.00	1.3810	76.20	61.38	48.25	1.4987	99.74	93.13
40.25	1.3843	76.86	62.07	48.50	1.5026	100.52	95.11
40.50	1.3876	77.52	62.77				

Specific Gravity determinations were made at 60° F., compared with water at 60° F.  
From the Specific Gravities, the corresponding degrees Baumé were calculated by the following formula :

Baumé = 145 —  $\frac{145}{\text{Sp. Gr.}}$  .

Baumé Hydrometers for use with this table must be graduated by the above formula, which formula should always be printed on the scale.

Atomic weights from F. W. Clarke's table of 1901. O = 16.

ALLOWANCE FOR TEMPERATURE :

At 10° — 20°	Bé. — 1/30° Bé.	or .00029 Sp. Gr. = 1° F.
20° — 30°	Bé. — 1/23° Bé.	or .00044 " " = 1° F.
30° — 40°	Bé. — 1/20° Bé.	or .00060 " " = 1° F.
40° — 48.5°	Bé. — 1/17° Bé.	or .00084 " " = 1° F.

AUTHORITY — W. C. FERGUSON.

This table has been approved and adopted as a Standard by the Manufacturing Chemists' Association of the United States.

New York, May 14, 1903.  
W. H. BOWER, JAS. L. MORGAN,  
HENRY HOWARD, ARTHUR WYMAN,  
A. G. ROSENGARTEN, Executive Committee

# XXXIII. — NITRIC ACID

LUNGE AND REY

Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter con- tains grams		Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter con- tains grams	
	% H <sub>2</sub> O	% HNO <sub>3</sub>	H <sub>2</sub> O	HNO <sub>3</sub>		% H <sub>2</sub> O	% HNO <sub>3</sub>	H <sub>2</sub> O	HNO <sub>3</sub>
1.000	0.06	0.10	1	1	1.195	27.10	31.62	324	378
1.005	0.85	1.00	8	10	1.200	27.74	32.36	333	388
1.010	1.62	1.90	16	19	1.205	28.36	33.00	342	399
1.015	2.39	2.80	24	28	1.210	28.99	33.82	351	409
1.020	3.17	3.70	33	38	1.215	29.61	34.55	360	420
1.025	3.94	4.60	40	47	1.220	30.24	35.28	369	430
1.030	4.71	5.50	49	57	1.225	30.88	36.03	378	441
1.035	5.47	6.38	57	66	1.230	31.53	36.78	387	452
1.040	6.22	7.26	64	75	1.235	32.17	37.53	397	463
1.045	6.97	8.13	73	85	1.240	32.82	38.29	407	475
1.050	7.71	9.00	81	94	1.245	33.47	39.05	417	486
1.055	8.43	9.84	89	104	1.250	34.13	39.82	427	498
1.060	9.15	10.68	97	113	1.255	34.78	40.58	437	509
1.065	9.87	11.51	105	123	1.260	35.44	41.34	447	521
1.070	10.57	12.33	113	132	1.265	36.09	42.10	457	533
1.075	11.27	13.15	121	141	1.270	36.75	42.87	467	544
1.080	11.96	13.95	129	151	1.275	37.41	43.64	477	556
1.085	12.64	14.74	137	160	1.280	38.07	44.41	487	568
1.090	13.31	15.53	145	170	1.285	38.73	45.18	497	581
1.095	13.99	16.32	153	179	1.290	39.39	45.95	508	593
1.100	14.67	17.11	161	188	1.295	40.05	46.72	519	605
1.105	15.34	17.89	170	198	1.300	40.71	47.49	529	617
1.110	16.00	18.67	177	207	1.305	41.37	48.26	540	630
1.115	16.67	19.45	186	217	1.310	42.06	49.07	551	643
1.120	17.34	20.23	195	227	1.315	42.76	49.89	562	656
1.125	18.00	21.00	203	236	1.320	43.47	50.71	573	669
1.130	18.66	21.77	211	246	1.325	44.17	51.53	585	683
1.135	19.32	22.54	219	256	1.330	44.89	52.37	597	697
1.140	19.98	23.31	228	266	1.3325	45.26	52.80	603	704
1.145	20.64	24.08	237	276	1.335	45.62	53.22	609	710
1.150	21.29	24.84	245	286	1.340	46.35	54.07	621	725
1.155	21.94	25.60	254	296	1.345	47.08	54.93	633	739
1.160	22.60	26.36	262	306	1.350	47.82	55.79	646	753
1.165	23.25	27.12	271	316	1.355	48.57	56.64		
1.170	23.90	27.88	279	326	1.360	49.35	57.4		
1.175	24.54	28.63	288	336	1.365	50.13	58.2		
1.180	25.18	29.38	297	347	1.370	50.91	59.0		
1.185	25.83	30.13	306	357	1.375				
1.190	26.47	30.88	315	367	1.380				

Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in vacuo	100 parts by weight contain		1 liter contains grams		Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in vacuo	100 parts by weight contain		1 liter contains grams	
	% $N_2O_5$	% $HNO_3$	$N_2O_5$	$HNO_3$		% $N_2O_5$	% $HNO_3$	$N_2O_5$	$HNO_3$
1.3833	53.08	61.92	735	857	1.495	78.52	91.60	1174	1369
1.385	53.35	62.24	739	862	1.500	80.65	94.09	1210	1411
1.390	54.20	63.23	753	879	1.501	81.09	94.60	1217	1420
1.395	55.07	64.25	768	896	1.502	81.50	95.08	1224	1428
1.400	55.97	65.30	783	914	1.503	81.91	95.55	1231	1436
1.405	56.92	66.40	800	933	1.504	82.29	96.00	1238	1444
1.410	57.86	67.50	816	952	1.505	82.63	96.39	1244	1451
1.415	58.83	68.63	832	971	1.506	82.94	96.76	1249	1457
1.420	59.83	69.80	849	991	1.507	83.26	97.13	1255	1464
1.425	60.84	70.98	867	1011	1.508	83.58	97.50	1260	1470
1.430	61.86	72.17	885	1032	1.509	83.87	97.84	1265	1476
1.435	62.91	73.39	903	1053	1.510	84.09	98.10	1270	1481
1.440	64.01	74.68	921	1075	1.511	84.28	98.32	1274	1486
1.445	65.13	75.98	941	1098	1.512	84.46	98.53	1277	1490
1.450	66.24	77.28	961	1121	1.513	84.63	98.73	1280	1494
1.455	67.38	78.60	981	1144	1.514	84.78	98.90	1283	1497
1.460	68.56	79.98	1001	1168	1.515	84.92	99.07	1287	1501
1.465	69.79	81.42	1023	1193	1.516	85.04	99.21	1289	1504
1.470	71.06	82.90	1045	1219	1.517	85.15	99.34	1292	1507
1.475	72.39	84.45	1068	1246	1.518	85.26	99.46	1294	1510
1.480	73.76	86.05	1092	1274	1.519	85.35	99.57	1296	1512
1.485	75.18	87.70	1116	1302	1.520	85.44	99.67	1299	1515
1.490	76.80	89.60	1144	1335					

# XXXIII. — NITRIC ACID

LUNGE AND REY

Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter contains grams		Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter contains grams	
	% N <sub>2</sub> O <sub>5</sub>	% HNO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	HNO <sub>3</sub>		% N <sub>2</sub> O <sub>5</sub>	% HNO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	HNO <sub>3</sub>
1.000	0.08	0.10	1	1	1.195	27.10	31.62	324	378
1.005	0.85	1.00	8	10	1.200	27.74	32.36	333	388
1.010	1.62	1.90	16	19	1.205	28.36	33.09	342	399
1.015	2.39	2.80	24	28	1.210	28.99	33.82	351	409
1.020	3.17	3.70	33	38	1.215	29.61	34.55	360	420
1.025	3.94	4.60	40	47	1.220	30.24	35.28	369	430
1.030	4.71	5.50	49	57	1.225	30.88	36.03	378	441
1.035	5.47	6.38	57	66	1.230	31.53	36.78	387	452
1.040	6.22	7.26	64	75	1.235	32.17	37.53	397	463
1.045	6.97	8.13	73	85	1.240	32.82	38.29	407	475
1.050	7.71	8.99	81	94	1.245	33.47	39.05	417	486
1.055	8.43	9.84	89	104	1.250	34.13	39.82	427	498
1.060	9.15	10.68	97	113	1.255	34.78	40.58	437	509
1.065	9.87	11.51	105	123	1.260	35.44	41.34	447	521
1.070	10.57	12.33	113	132	1.265	36.09	42.10	457	533
1.075	11.27	13.15	121	141	1.270	36.75	42.87	467	544
1.080	11.96	13.95	129	151	1.275	37.41	43.64	477	556
1.085	12.64	14.74	137	160	1.280	38.07	44.41	487	568
1.090	13.31	15.53	145	169	1.285	38.73	45.18	498	581
1.095	13.99	16.32	153	179	1.290	39.39	45.95	508	593
1.100	14.67	17.11	161	188	1.295	40.05	46.72	519	605
1.105	15.34	17.89	170	198	1.300	40.71	47.49	529	617
1.110	16.00	18.67	177	207	1.305	41.37	48.26	540	630
1.115	16.67	19.45	186	217	1.310	42.06	49.07	551	643
1.120	17.34	20.23	195	227	1.315	42.76	49.89	562	656
1.125	18.00	21.00	202	236	1.320	43.47	50.71	573	669
1.130	18.66	21.77	211	246	1.325	44.17	51.53	585	683
1.135	19.32	22.54	219	256	1.330	44.89	52.37	597	697
1.140	19.98	23.31	228	266	1.3325	45.26	52.80	603	704
1.145	20.64	24.08	237	276	1.335	45.62	53.22	609	710
1.150	21.29	24.84	245	286	1.340	46.35	54.07	621	725
1.155	21.94	25.60	254	296	1.345	47.08	54.93	633	739
1.160	22.60	26.36	262	306	1.350	47.82	55.79	645	753
1.165	23.25	27.12	271	316	1.355	48.57	56.66	658	768
1.170	23.90	27.88	279	326	1.360	49.35	57.57	671	783
1.175	24.54	28.63	288	336	1.365	50.13	58.48	684	798
1.180	25.18	29.38	297	347	1.370	50.91	59.39	698	814
1.185	25.83	30.13	306	357	1.375	51.69	60.30	711	829
1.190	26.47	30.88	315	367	1.380	52.52	61.27	725	846

Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in vacuo	100 parts by weight contain		1 liter contains grams		Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in vacuo	100 parts by weight contain		1 liter contains grams	
	% $N_2O_5$	% $HNO_3$	$N_2O_5$	$HNO_3$		% $N_2O_5$	% $HNO_3$	$N_2O_5$	$HNO_3$
1.3833	53.08	61.92	735	857	1.495	78.52	91.60	1174	1369
1.385	53.35	62.24	739	862	1.500	80.65	94.09	1210	1411
1.390	54.20	63.23	753	879	1.501	81.09	94.60	1217	1420
1.395	55.07	64.25	768	896	1.502	81.50	95.08	1224	1428
1.400	55.97	65.30	783	914	1.503	81.91	95.55	1231	1436
1.405	56.92	66.40	800	933	1.504	82.29	96.00	1238	1444
1.410	57.86	67.50	816	952	1.505	82.63	96.39	1244	1451
1.415	58.83	68.63	832	971	1.506	82.94	96.76	1249	1457
1.420	59.83	69.80	849	991	1.507	83.26	97.13	1255	1464
1.425	60.84	70.98	867	1011	1.508	83.58	97.50	1260	1470
1.430	61.86	72.17	885	1032	1.509	83.87	97.84	1265	1476
1.435	62.91	73.39	903	1053	1.510	84.09	98.10	1270	1481
1.440	64.01	74.68	921	1075	1.511	84.28	98.32	1274	1486
1.445	65.13	75.98	941	1098	1.512	84.46	98.53	1277	1490
1.450	66.24	77.28	961	1121	1.513	84.63	98.73	1280	1494
1.455	67.38	78.60	981	1144	1.514	84.78	98.90	1283	1497
1.460	68.56	79.98	1001	1168	1.515	84.92	99.07	1287	1501
1.465	69.79	81.42	1023	1193	1.516	85.04	99.21	1289	1504
1.470	71.06	82.90	1045	1219	1.517	85.15	99.34	1292	1507
1.475	72.39	84.45	1068	1246	1.518	85.26	99.46	1294	1510
1.480	73.76	86.05	1092	1274	1.519	85.35	99.57	1296	1512
1.485	75.18	87.70	1116	1302	1.520	85.44	99.67	1299	1515
1.490	76.80	89.60	1144	1335					

# XXXIV.—HYDROCHLORIC ACID

By W. C. FERGUSON

Degrees Baumé.	Sp. Gr.	Degrees Twaddell.	Per Cent HCl.	Degrees Baumé.	Sp. Gr.	Degrees Twaddell.	Per Cent HCl.
1.00	1.0069	1.38	1.40	14.25	1.1090	21.80	21.68
2.00	1.0140	2.80	2.82	14.50	1.1111	22.22	22.09
3.00	1.0211	4.22	4.25	14.75	1.1132	22.64	22.50
4.00	1.0284	5.68	5.69	15.00	1.1154	23.08	22.92
5.00	1.0357	7.14	7.15	15.25	1.1176	23.52	23.33
5.25	1.0375	7.50	7.52	15.50	1.1197	23.94	23.75
5.50	1.0394	7.88	7.89	15.75	1.1219	24.38	24.16
5.75	1.0413	8.26	8.26	16.0	1.1240	24.80	24.57
6.00	1.0432	8.64	8.64	16.1	1.1248	24.96	24.73
6.25	1.0450	9.00	9.02	16.2	1.1256	25.12	24.90
6.50	1.0469	9.38	9.40	16.3	1.1265	25.30	25.06
6.75	1.0488	9.76	9.78	16.4	1.1274	25.48	25.23
7.00	1.0507	10.14	10.17	16.5	1.1283	25.66	25.39
7.25	1.0526	10.52	10.55	16.6	1.1292	25.84	25.56
7.50	1.0545	10.90	10.94	16.7	1.1301	26.02	25.72
7.75	1.0564	11.28	11.32	16.8	1.1310	26.20	25.89
8.00	1.0584	11.68	11.71	16.9	1.1319	26.38	26.05
8.25	1.0603	12.06	12.09	17.0	1.1328	26.56	26.22
8.50	1.0623	12.46	12.48	17.1	1.1336	26.72	26.39
8.75	1.0642	12.84	12.87	17.2	1.1345	26.90	26.56
9.00	1.0662	13.24	13.26	17.3	1.1354	27.08	26.73
9.25	1.0681	13.62	13.65	17.4	1.1363	27.26	26.90
9.50	1.0701	14.02	14.04	17.5	1.1372	27.44	27.07
9.75	1.0721	14.42	14.43	17.6	1.1381	27.62	27.24
10.00	1.0741	14.82	14.83	17.7	1.1390	27.80	27.41
10.25	1.0761	15.22	15.22	17.8	1.1399	27.98	27.58
10.50	1.0781	15.62	15.62	17.9	1.1408	28.16	27.75
10.75	1.0801	16.02	16.01	18.0	1.1417	28.34	27.92
11.00	1.0821	16.42	16.41	18.1	1.1426	28.52	28.09
11.25	1.0841	16.82	16.81	18.2	1.1435	28.70	28.26
11.50	1.0861	17.22	17.21	18.3	1.1444	28.88	28.44
11.75	1.0881	17.62	17.61	18.4	1.1453	29.06	28.61
12.00	1.0902	18.04	18.01	18.5	1.1462	29.24	28.78
12.25	1.0922	18.44	18.41	18.6	1.1471	29.42	28.95
12.50	1.0943	18.86	18.82	18.7	1.1480	29.60	29.13
12.75	1.0964	19.28	19.22	18.8	1.1489	29.78	29.30
13.00	1.0985	19.70	19.63	18.9	1.1498	29.96	29.48
13.25	1.1006	20.12	20.04	19.0	1.1508	30.16	29.65
13.50	1.1027	20.54	20.45	19.1	1.1517	30.34	29.83
13.75	1.1048	20.96	20.86	19.2	1.1526	30.52	30.00
14.00	1.1069	21.38	21.27	19.3	1.1535	30.70	30.18

Degrees Baumé.	Sp. Gr.	Degrees Twaddell.	Per Cent HCl.	Degrees Baumé.	Sp. Gr.	Degrees Twaddell.	Per Cent HCl.
19.4	1.1544	30.88	30.35	22.5	1.1836	36.72	36.16
19.5	1.1554	31.08	30.53	22.6	1.1846	36.92	36.35
19.6	1.1563	31.26	30.71	22.7	1.1856	37.12	36.54
19.7	1.1572	31.44	30.90	22.8	1.1866	37.32	36.73
19.8	1.1581	31.62	31.08	22.9	1.1875	37.50	36.93
19.9	1.1590	31.80	31.27	23.0	1.1885	37.70	37.14
20.0	1.1600	32.00	31.45	23.1	1.1895	37.90	37.36
20.1	1.1609	32.18	31.64	23.2	1.1904	38.08	37.58
20.2	1.1619	32.38	31.82	23.3	1.1914	38.28	37.80
20.3	1.1628	32.56	32.01	23.4	1.1924	38.48	38.03
20.4	1.1637	32.74	32.19	23.5	1.1934	38.68	38.26
20.5	1.1647	32.94	32.38	23.6	1.1944	38.88	38.49
20.6	1.1656	33.12	32.56	23.7	1.1953	39.06	38.72
20.7	1.1666	33.32	32.75	23.8	1.1963	39.26	38.95
20.8	1.1675	33.50	32.93	23.9	1.1973	39.46	39.18
20.9	1.1684	33.68	33.12	24.0	1.1983	39.66	39.41
21.0	1.1694	33.88	33.31	24.1	1.1993	39.86	39.64
21.1	1.1703	34.06	33.50	24.2	1.2003	40.06	39.86
21.2	1.1713	34.26	33.69	24.3	1.2013	40.26	40.09
21.3	1.1722	34.44	33.88	24.4	1.2023	40.46	40.32
21.4	1.1732	34.64	34.07	24.5	1.2033	40.66	40.55
21.5	1.1741	34.82	34.26	24.6	1.2043	40.86	40.78
21.6	1.1751	35.02	34.45	24.7	1.2053	41.06	41.01
21.7	1.1760	35.20	34.64	24.8	1.2063	41.26	41.24
21.8	1.1770	35.40	34.83	24.9	1.2073	41.46	41.48
21.9	1.1779	35.58	35.02	25.0	1.2083	41.66	41.72
22.0	1.1789	35.78	35.21	25.1	1.2093	41.86	41.99
22.1	1.1798	35.96	35.40	25.2	1.2103	42.06	42.30
22.2	1.1808	36.16	35.59	25.3	1.2114	42.28	42.64
22.3	1.1817	36.34	35.78	25.4	1.2124	42.48	43.01
22.4	1.1827	36.54	35.97	25.5	1.2134	42.68	43.40

Sp. Gr. determinations were made at 60° F., compared with water at 60° F.

From the Specific Gravities, the corresponding degrees Baumé were calculated by the following formula: Baumé = 145 - 145/Sp. Gr.

Atomic weights from F. W. Clarke's table of 1901. O = 16.

#### ALLOWANCE FOR TEMPERATURE:

10—15° Bé. — 1/40° Bé. or .0002 Sp. Gr. for 1° F.

15—22° Bé. — 1/30° Bé. or .0003 " " " 1° F.

22—25° Bé. — 1/28° Bé. or .00035 " " " 1° F.

AUTHORITY — W. C. FERGUSON.

This table has been approved and adopted as a Standard by the Manufacturing Chemists' Association of the United States.

W. H. BOWER, JAS. L. MORGAN,  
HENRY HOWARD, ARTHUR WYMAN,  
A. G. ROSENGARTEN,

New York, May 14, 1903.

*Executive Committee.*

# XXXV. — HYDROCHLORIC ACID

LUNGE AND MARCHLENSKI

Specific Gravity. $\frac{15^{\circ}}{4^{\circ}}$ in Vacuo.	Per Cent HCl by Weight.	1 Liter con- tains Grams HCl.	Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in Vacuo.	Per Cent HCl by Weight.	1 Liter con- tains Grams HCl.	Specific Gravity $\frac{15^{\circ}}{4^{\circ}}$ in Vacuo.	Per Cent HCl by Weight.	1 Liter con- tains Grams HCl.
1.000	0.16	1.6	1.075	15.16	163	1.145	28.61	328
1.005	1.15	12	1.080	16.15	174	1.150	29.57	340
1.010	2.14	22	1.085	17.13	186	1.152	29.95	345
1.015	3.12	32	1.090	18.11	197	1.155	30.55	353
1.020	4.13	42	1.095	19.06	209	1.160	31.52	366
1.025	5.15	53	1.100	20.01	220	1.163	32.10	373
1.030	6.15	64	1.105	20.97	232	1.165	32.49	379
1.035	7.15	74	1.110	21.92	243	1.170	33.46	392
1.040	8.16	85	1.115	22.86	255	1.171	33.65	394
1.045	9.16	96	1.120	23.82	267	1.175	34.42	404
1.050	10.17	107	1.125	24.78	278	1.180	35.39	418
1.055	11.18	118	1.130	25.75	291	1.185	36.31	430
1.060	12.19	129	1.135	26.70	303	1.190	37.23	443
1.065	13.19	141	1.140	27.66	315	1.195	38.16	456
1.070	14.17	152	1.1425	28.14	322	1.200	39.11	469



# XXXVI. — ACETIC ACID AT 15°

OUDEMANS

Specific Gravity.	Per Cent $\text{H.C}_2\text{H}_3\text{O}_2$ .	Specific Gravity.	Per Cent $\text{H.C}_2\text{H}_3\text{O}_2$ .	Specific Gravity.	Per Cent $\text{H.C}_2\text{H}_3\text{O}_2$ .	Specific Gravity.	Per Cent $\text{H.C}_2\text{H}_3\text{O}_2$ .
0.9992	0	1.0363	26	1.0623	51	1.0747	76
1.0007	1	1.0375	27	1.0631	52	1.0748	77
1.0022	2	1.0388	28	1.0638	53	1.0748	78
1.0037	3	1.0400	29	1.0646	54	1.0748	79
1.0052	4	1.0412	30	1.0653	55	1.0748	80
1.0067	5	1.0424	31	1.0660	56	1.0747	81
1.0083	6	1.0436	32	1.0666	57	1.0746	82
1.0098	7	1.0447	33	1.0673	58	1.0744	83
1.0113	8	1.0459	34	1.0679	59	1.0742	84
1.0127	9	1.0470	35	1.0685	60	1.0739	85
1.0142	10	1.0481	36	1.0691	61	1.0736	86
1.0157	11	1.0492	37	1.0697	62	1.0731	87
1.0171	12	1.0502	38	1.0702	63	1.0726	88
1.0185	13	1.0513	39	1.0707	64	1.0720	89
1.0200	14	1.0523	40	1.0712	65	1.0713	90
1.0214	15	1.0533	41	1.0717	66	1.0705	91
1.0228	16	1.0543	42	1.0721	67	1.0696	92
1.0242	17	1.0552	43	1.0725	68	1.0686	93
1.0256	18	1.0562	44	1.0729	69	1.0674	94
1.0270	19	1.0571	45	1.0733	70	1.0660	95
1.0284	20	1.0580	46	1.0737	71	1.0644	96
1.0298	21	1.0589	47	1.0740	72	1.0625	97
1.0311	22	1.0598	48	1.0742	73	1.0604	98
1.0324	23	1.0607	49	1.0744	74	1.0580	99
1.0337	24	1.0615	50	1.0746	75	1.0553	100
1.0350	25						

## XXXVII. — PHOSPHORIC ACID AT 17.5°

HAGER

Specific Gravity.	Per Cent. $P_2O_5$ .	Per Cent. $H_3PO_4$ .	Specific Gravity.	Per Cent. $P_2O_5$ .	Per Cent. $H_3PO_4$ .	Specific Gravity.	Per Cent. $P_2O_5$ .	Per Cent. $H_3PO_4$ .
1.809	68.0	93.67	1.462	46.0	63.37	1.208	24.0	33.06
1.800	67.5	92.99	1.455	45.5	62.68	1.203	23.5	32.37
1.792	67.0	92.30	1.448	45.0	61.99	1.198	23.0	31.68
1.783	66.5	91.61	1.441	44.5	61.30	1.193	22.5	30.99
1.775	66.0	90.92	1.435	44.0	60.61	1.188	22.0	30.31
1.766	65.5	90.23	1.428	43.5	59.92	1.183	21.5	29.62
1.758	65.0	89.54	1.422	43.0	59.23	1.178	21.0	28.93
1.750	64.5	88.85	1.415	42.5	58.55	1.174	20.5	28.24
1.741	64.0	88.16	1.409	42.0	57.86	1.169	20.0	27.55
1.733	63.5	87.48	1.402	41.5	57.17	1.164	19.5	26.86
1.725	63.0	86.79	1.396	41.0	56.48	1.159	19.0	26.17
1.717	62.5	86.10	1.389	40.5	55.79	1.155	18.5	25.48
1.709	62.0	85.41	1.383	40.0	55.10	1.150	18.0	24.80
1.701	61.5	84.72	1.377	39.5	54.41	1.145	17.5	24.11
1.693	61.0	84.03	1.371	39.0	53.72	1.140	17.0	23.42
1.685	60.5	83.34	1.365	38.5	53.04	1.135	16.5	22.73
1.677	60.0	82.65	1.359	38.0	52.35	1.130	16.0	22.04
1.669	59.5	81.97	1.354	37.5	51.66	1.126	15.5	21.35
1.661	59.0	81.28	1.348	37.0	50.97	1.122	15.0	20.66
1.653	58.5	80.59	1.342	36.5	50.28	1.118	14.5	19.97
1.645	58.0	79.90	1.336	36.0	49.59	1.113	14.0	19.28
1.637	57.5	79.21	1.330	35.5	48.90	1.109	13.5	18.60
1.629	57.0	78.52	1.325	35.0	48.21	1.104	13.0	17.91
1.621	56.5	77.83	1.319	34.5	47.52	1.100	12.5	17.22
1.613	56.0	77.14	1.314	34.0	46.84	1.096	12.0	16.53
1.605	55.5	76.45	1.308	33.5	46.15	1.091	11.5	15.84
1.597	55.0	75.77	1.303	33.0	45.46	1.087	11.0	15.15
1.589	54.5	75.08	1.298	32.5	44.77	1.083	10.5	14.46
1.581	54.0	74.39	1.292	32.0	44.08	1.079	10.0	13.77
1.574	53.5	73.70	1.287	31.5	43.39	1.074	9.5	13.09
1.566	53.0	73.01	1.281	31.0	42.70	1.070	9.0	12.40
1.559	52.5	72.32	1.276	30.5	42.01	1.066	8.5	11.71
1.551	52.0	71.63	1.271	30.0	41.33	1.062	8.0	11.02
1.543	51.5	70.94	1.265	29.5	40.64	1.058	7.5	10.33
1.536	51.0	70.26	1.260	29.0	39.95	1.053	7.0	9.64
1.528	50.5	69.57	1.255	28.5	39.26	1.049	6.5	8.95
1.521	50.0	68.88	1.249	28.0	38.57	1.045	6.0	8.26
1.513	49.5	68.19	1.244	27.5	37.88	1.041	5.5	7.57
1.505	49.0	67.50	1.239	27.0	37.19	1.037	5.0	6.89
1.498	48.5	66.81	1.233	26.5	36.50	1.033	4.5	6.20
1.491	48.0	66.12	1.228	26.0	35.82	1.029	4.0	5.51
1.484	47.5	65.43	1.223	25.5	35.13	1.025	3.5	4.82
1.476	47.0	64.75	1.218	25.0	34.44	1.021	3.0	4.13
1.469	46.5	64.06	1.213	24.5	33.75	1.017	2.5	3.44

# XXXVIII. — AQUA AMMONIA

ACCORDING TO W. C. FERGUSON

Degrees Baumé.	Sp. Gr. 60° F.	Per Cent NH <sub>3</sub> .	Degrees Baumé.	Sp. Gr. 60° F.	Per Cent NH <sub>3</sub> .	Degrees Baumé.	Sp. Gr. 60° F.	Per Cent NH <sub>3</sub> .
10.00	1.0000	.00	16.50	.9556	11.18	23.00	.9150	23.52
10.25	.9982	.40	16.75	.9540	11.64	23.25	.9135	24.01
10.50	.9964	.80	17.00	.9524	12.10	23.50	.9121	24.50
10.75	.9947	1.21	17.25	.9508	12.56	23.75	.9106	24.99
11.00	.9929	1.62	17.50	.9492	13.02	24.00	.9091	25.48
11.25	.9912	2.04	17.75	.9475	13.49	24.25	.9076	25.97
11.50	.9894	2.46	18.00	.9459	13.96	24.50	.9061	26.46
11.75	.9876	2.88	18.25	.9444	14.43	24.75	.9047	26.95
12.00	.9859	3.30	18.50	.9428	14.90	25.00	.9032	27.44
12.25	.9842	3.73	18.75	.9412	15.37	25.25	.9018	27.93
12.50	.9825	4.16	19.00	.9396	15.84	25.50	.9003	28.42
12.75	.9807	4.59	19.25	.9380	16.32	25.75	.8989	28.91
13.00	.9790	5.02	19.50	.9365	16.80	26.00	.8974	29.40
13.25	.9773	5.45	19.75	.9349	17.28	26.25	.8960	29.89
13.50	.9756	5.88	20.00	.9333	17.76	26.50	.8946	30.38
13.75	.9739	6.31	20.25	.9318	18.24	26.75	.8931	30.87
14.00	.9722	6.74	20.50	.9302	18.72	27.00	.8917	31.36
14.25	.9705	7.17	20.75	.9287	19.20	27.25	.8903	31.85
14.50	.9689	7.61	21.00	.9272	19.68	27.50	.8889	32.34
14.75	.9672	8.05	21.25	.9256	20.16	27.75	.8875	32.83
15.00	.9655	8.49	21.50	.9241	20.64	28.00	.8861	33.32
15.25	.9639	8.93	21.75	.9226	21.12	28.25	.8847	33.81
15.50	.9622	9.38	22.00	.9211	21.60	28.50	.8833	34.30
15.75	.9605	9.83	22.25	.9195	22.08	28.75	.8819	34.79
16.00	.9589	10.28	22.50	.9180	22.56	29.00	.8805	35.28
16.25	.9573	10.73	22.75	.9165	23.04			

Specific Gravity determinations were made at 60° F., compared with water at 60° F.

From the Specific Gravities the corresponding degrees Baumé were calculated by the following formula:

$$\text{Baumé} = \frac{140}{\text{Sp. Gr.}} - 130.$$

\* Baumé Hydrometers for use with this table must be graduated by the above formula, which formula should *always* be printed on the scale.

Atomic weights from F. W. Clarke's table of 1901. O = 16.

ALLOWANCE FOR TEMPERATURE

The coefficient of expansion for ammonia solutions, varying with the temperature, correction must be applied according to the following table:

Corrections to be Added for Each Degree Below 60° F.			Corrections to be Subtracted for Each Degree Above 60° F.			
Degrees Baumé.	40° F.	50° F.	70° F.	80° F.	90° F.	100° F.
14° Bé	.015° Bé	.017° Bé	.020° Bé	.022° Bé	.024° Bé	.026° Bé
16°	.021 "	.023 "	.026 "	.028 "	.030 "	.032 "
18°	.027 "	.029 "	.031 "	.033 "	.035 "	.037 "
20°	.033 "	.036 "	.037 "	.038 "	.040 "	.042 "
22°	.039 "	.042 "	.043 "	.045 "	.047 "	
26°	.053 "	.057 "	.057 "	.059 "		

AUTHORITY — W. C. FERGUSON.

This table has been approved and adopted as a Standard by the Manufacturing Chemists' Association of the United States.

W. H. BOWER,  
HENRY HOWARD,  
JAS. L. MORGAN,  
ARTHUR WYMAN,  
A. G. ROSENGARTEN,  
*Executive Committee.*

New York, May 14, 1903.

XXXIX.—SODIUM HYDROXIDE SOLUTION AT 15°

LUNGE

Specific Gravity.	Degrees Baumé.	Degrees Twaddell.	Per Cent Na <sub>2</sub> O.	Per Cent NaOH.	1 Liter contains Grams	
					Na <sub>2</sub> O.	NaOH.
1.007	1.0	1.4	0.47	0.61	4	6
1.014	2.0	2.8	0.93	1.20	9	12
1.022	3.1	4.4	1.55	2.00	16	21
1.029	4.1	5.8	2.10	2.70	22	28
1.036	5.1	7.2	2.60	3.35	27	35
1.045	6.2	9.0	3.10	4.00	32	42
1.052	7.2	10.4	3.60	4.64	38	49
1.060	8.2	12.0	4.10	5.29	43	56
1.067	9.1	13.4	4.55	5.87	49	63
1.075	10.1	15.0	5.08	6.55	55	70
1.083	11.1	16.6	5.67	7.31	61	79
1.091	12.1	18.2	6.20	8.00	68	87
1.100	13.2	20.0	6.73	8.68	74	95
1.108	14.1	21.6	7.30	9.42	81	104
1.116	15.1	23.2	7.80	10.06	87	112
1.125	16.1	25.0	8.50	10.97	96	123
1.134	17.1	26.8	9.18	11.84	104	134
1.142	18.0	28.4	9.80	12.64	112	144
1.152	19.1	30.4	10.50	13.55	121	156
1.162	20.2	32.4	11.14	14.37	129	167
1.171	21.2	34.2	11.73	15.13	137	177
1.180	22.1	36.0	12.33	15.91	146	188
1.190	23.1	38.0	13.00	16.77	155	200
1.200	24.2	40.0	13.70	17.67	164	212
1.210	25.2	42.0	14.40	18.58	174	225
1.220	26.1	44.0	15.18	19.58	185	239
1.231	27.2	46.2	15.96	20.59	196	253
1.241	28.2	48.2	16.76	21.42	208	266
1.252	29.2	50.4	17.55	22.64	220	283
1.263	30.2	52.6	18.35	23.67	232	299
1.274	31.2	54.8	19.23	24.81	245	316
1.285	32.2	57.0	20.00	25.80	257	332
1.297	33.2	59.4	20.80	26.83	270	348
1.308	34.1	61.6	21.55	27.80	282	364
1.320	35.2	64.0	22.35	28.83	295	381
1.332	36.1	66.4	23.20	29.93	309	399
1.345	37.2	69.0	24.20	31.22	326	420

Specific Gravity.	Degrees Baumé.	Degrees Twaddell.	Per Cent Na <sub>2</sub> O.	Per Cent NaOH.	1 Liter contains Grams	
					Na <sub>2</sub> O.	NaOH.
1.357	38.1	71.4	25.17	32.47	342	441
1.370	39.2	74.0	26.12	33.69	359	462
1.383	40.2	76.6	27.10	34.96	375	483
1.397	41.2	79.4	28.10	36.25	392	506
1.410	42.2	82.0	29.05	37.47	410	528
1.424	43.2	84.8	30.08	38.80	428	553
1.438	44.2	87.6	31.00	39.99	446	575
1.453	45.2	90.6	32.10	41.41	466	602
1.468	46.2	93.6	33.20	42.83	487	629
1.483	47.2	96.6	34.40	44.38	510	658
1.498	48.2	99.6	35.70	46.15	535	691
1.514	49.2	102.8	36.90	47.60	559	721
1.530	50.2	106.0	38.00	49.02	581	750

XL. — POTASSIUM HYDROXIDE SOLUTION AT 15°  
LUNGE

Specific Gravity.	Degrees Baumé.	Degrees Twaddell.	Per Cent K <sub>2</sub> O.	Per Cent KOH.	1 Liter contains Grams	
					K <sub>2</sub> O.	KOH.
1.007	1.0	1.4	0.7	0.9	7	9
1.014	2.0	2.8	1.4	1.7	14	17
1.022	3.1	4.4	2.2	2.6	22	26
1.029	4.1	5.8	2.9	3.5	30	36
1.037	5.2	7.4	3.8	4.5	39	46
1.045	6.2	9.0	4.7	5.6	49	58
1.052	7.2	10.4	5.4	6.4	57	67
1.060	8.2	12.0	6.2	7.4	66	78
1.067	9.1	13.4	6.9	8.2	74	83
1.075	10.1	15.0	7.7	9.2	83	99
1.083	11.1	16.6	8.5	10.1	92	109
1.091	12.1	18.2	9.2	10.9	100	119
1.100	13.2	20.0	10.1	12.0	111	132
1.108	14.1	21.6	10.8	12.9	119	143
1.116	15.1	23.2	11.6	13.8	129	153

Specific Gravity.	Degrees Baumé.	Degrees Twaddell.	Per Cent K <sub>2</sub> O.	Per Cent KOH.	1 Liter contains Grams	
					K <sub>2</sub> O.	KOH.
1.125	16.1	25.0	12.4	14.8	140	167
1.134	17.1	26.8	13.2	15.7	150	178
1.142	18.0	28.4	13.9	16.5	159	183
1.152	19.1	30.4	14.8	17.6	170	203
1.162	20.2	32.4	15.6	18.6	181	216
1.171	21.2	34.2	16.4	19.5	192	228
1.180	22.1	36.0	17.2	20.5	203	242
1.190	23.1	38.0	18.0	21.4	214	255
1.200	24.2	40.0	18.8	22.4	226	269
1.210	25.2	42.0	19.6	23.3	237	282
1.220	26.1	44.0	20.3	24.2	248	295
1.231	27.2	46.2	21.1	25.1	260	309
1.241	28.2	48.2	21.9	26.1	272	324
1.252	29.2	50.4	22.7	27.0	284	338
1.263	30.2	52.6	23.5	28.0	297	353
1.274	31.2	54.8	24.2	28.9	308	368
1.285	32.2	57.0	25.0	29.8	321	385
1.297	33.2	59.4	25.8	30.7	335	398
1.308	34.1	61.6	26.7	31.8	349	416
1.320	35.2	64.0	27.5	32.7	363	432
1.332	36.1	66.4	28.3	33.7	377	449
1.345	37.2	69.0	29.3	34.9	394	469
1.357	38.1	71.4	30.2	35.9	410	487
1.370	39.2	74.0	31.0	36.9	425	506
1.383	40.2	76.6	31.8	37.8	440	522
1.397	41.2	79.4	32.7	38.9	457	543
1.410	42.2	82.0	33.5	39.9	472	563
1.424	43.2	84.8	34.4	40.9	490	582
1.438	44.2	87.6	35.4	42.1	509	605
1.453	45.2	90.6	36.5	43.4	530	631
1.468	46.2	93.6	37.5	44.6	549	655
1.483	47.2	96.6	38.5	45.8	571	679
1.498	48.2	99.6	39.6	47.1	593	706
1.514	49.2	102.8	40.6	48.3	615	731
1.530	50.2	106.0	41.5	49.4	635	756
1.546	51.2	109.2	42.5	50.6	655	779
1.563	52.2	112.6	43.6	51.9	681	811
1.580	53.2	116.0	44.7	53.2	706	840
1.597	54.2	119.4	45.8	54.5	731	870
1.615	55.2	123.0	47.0	55.9	754	905
1.634	56.3	126.8	48.3	57.5	789	940

XLI. — SODIUM CARBONATE SOLUTION AT 15°

LUNGE

Specific Gravity.	Degrees Baumé.	Per Cent $\text{Na}_2\text{CO}_3$ .	Per Cent $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .	1 Liter contains Grams	
				$\text{Na}_2\text{CO}_3$ .	$\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .
1.007	1.0	0.67	1.807	6.8	18.2
1.014	2.0	1.33	3.587	13.5	36.4
1.022	3.1	2.09	5.637	21.4	57.6
1.029	4.1	2.76	7.444	28.4	76.6
1.036	5.1	3.43	9.251	35.5	95.8
1.045	6.2	4.29	11.570	44.8	120.9
1.052	7.2	4.94	13.323	52.0	140.2
1.060	8.2	5.71	15.400	60.5	163.2
1.067	9.1	6.37	17.180	68.0	183.3
1.075	10.1	7.12	19.203	76.5	206.4
1.083	11.1	7.88	21.252	85.3	230.2
1.091	12.1	8.62	23.248	94.0	253.6
1.100	13.2	9.43	25.432	103.7	279.8
1.108	14.1	10.19	27.482	112.9	304.5
1.116	15.1	10.95	29.532	122.2	329.6
1.125	16.1	11.81	31.851	132.9	358.3
1.134	17.1	12.61	34.009	143.0	385.7
1.142	18.0	13.16	35.493	150.3	405.3
1.152	19.1	14.24	38.405	164.1	442.4



# **XLII. — CONCENTRATED SODIUM CARBONATE SOLUTION** **AT 30°**

LUNGE

Specific Gravity	Degrees Baumé.	Per Cent Na <sub>2</sub> CO <sub>3</sub> .	Per Cent Na <sub>2</sub> CO <sub>3</sub> .10H <sub>2</sub> O.	1 Liter contains Grams	
				Na <sub>2</sub> CO <sub>3</sub> .	Na <sub>2</sub> CO <sub>3</sub> .10H <sub>2</sub> O.
1.142	18.0	13.79	37.21	157.5	425.0
1.152	19.1	14.64	39.51	168.7	455.2
1.162	20.2	15.49	41.79	180.0	485.7
1.171	21.2	16.27	43.89	190.5	514.0
1.180	22.1	17.04	45.97	201.1	542.6
1.190	23.1	17.90	48.31	214.0	577.5
1.200	24.2	18.76	50.62	225.1	607.4
1.210	25.2	19.61	52.91	237.3	640.3
1.220	26.1	20.47	55.29	249.7	673.8
1.231	27.2	21.42	57.80	263.7	711.5
1.241	28.2	22.29	60.15	276.6	746.3
1.252	29.2	23.25	62.73	291.1	785.4
1.263	30.2	24.18	65.24	305.4	824.1
1.274	31.2	25.11	67.76	319.9	863.2
1.285	32.2	26.04	70.28	334.6	902.8
1.297	33.2	27.06	73.02	351.0	947.1
1.308	34.1	27.97	75.48	365.9	987.4

# **XLIII.—CORRECTION OF SPECIFIC GRAVITY OF SODIUM CARBONATE FOR ± 1° C.**

LUNGE

For Temperatures from					For Specific Gravity	
0° to 30°.	30° to 40°.	40° to 50°	50° to 70°.	70° to 100°.	From	To
0.0002	0.0004	0.0004	0.0005	0.0005	1.010	1.050
0.0003	0.0004	0.0004	0.0006	0.0005	1.060	1.070
0.0004	0.0004	0.0004	0.0006	0.0006	1.080	1.110
0.0004	0.0004	0.0005	0.0006	0.0006	1.120	1.170
0.0004	0.0004	0.0006	0.0007	0.0007	1.180	1.200
0.0005	0.0004	0.0005	0.0007	0.0007	1.210	1.240
	0.0005	0.0005	0.0007	0.0007	1.241	1.252
	0.0005	0.0005	0.0006	0.0008	1.263	1.285

XLIV.—POTASSIUM CARBONATE SOLUTION AT 15°

CALCULATED FROM GERLACH

Specific Gravity.	Baumé.	Twaddell.	Per Cent $K_2CO_3$ .	1 Liter contains Grams $K_2CO_3$ .	Specific Gravity.	Baumé.	Twaddell.	Per Cent $K_2CO_3$ .	1 Liter contains Grams $K_2CO_3$ .
1.00914	1.3	1.8	1	10.1	1.27893	31.6	55.8	28	358.1
1.01829	2.6	3.6	2	20.4	1.28999	32.6	58.0	29	374.1
1.02743	3.9	5.4	3	30.8	1.30105	33.6	60.2	30	390.3
1.03658	5.1	7.2	4	41.4	1.31261	34.5	62.5	31	406.9
1.04572	6.3	9.2	5	52.3	1.32417	35.5	64.8	32	423.7
1.05513	7.6	11.0	6	63.3	1.33573	36.4	67.1	33	440.8
1.06454	8.8	12.9	7	74.5	1.34729	37.4	69.5	34	458.1
1.07396	10.0	14.8	8	85.9	1.35885	38.3	71.8	35	475.6
1.08337	11.2	16.6	9	97.5	1.37082	39.2	74.2	36	493.5
1.09278	12.3	18.6	10	109.3	1.38279	40.1	76.6	37	511.6
1.10258	13.5	20.5	11	121.3	1.39476	41.0	79.0	38	530.0
1.11238	14.6	22.4	12	133.5	1.40673	41.9	81.4	39	548.6
1.12219	15.8	24.4	13	145.9	1.41870	42.8	83.7	40	567.5
1.13199	16.9	26.4	14	158.5	1.43104	43.7	86.2	41	586.7
1.14179	18.0	28.3	15	171.3	1.44338	44.5	88.7	42	606.2
1.15200	19.1	30.4	16	184.3	1.45573	45.4	91.1	43	626.0
1.16222	20.2	32.4	17	197.5	1.46807	46.2	93.6	44	646.0
1.17243	21.3	34.5	18	211.0	1.48041	47.1	96.0	45	666.2
1.18265	22.4	36.5	19	224.7	1.49314	47.9	98.6	46	686.8
1.19286	23.4	38.6	20	238.6	1.50588	48.7	101.2	47	707.7
1.20344	24.5	40.7	21	252.7	1.51861	49.5	103.7	48	728.9
1.21402	25.6	42.8	22	267.1	1.53135	50.3	106.3	49	750.4
1.22459	26.6	44.9	23	281.7	1.54408	51.1	108.8	50	772.1
1.23517	27.6	47.0	24	296.5	1.55728	51.9	111.5	51	794.2
1.24575	28.6	49.1	25	311.5	1.57048	52.7	114.1	52	816.7
1.25681	29.6	51.4	26	326.8	1.57079	52.7	114.2	52.024	817.2
1.26787	30.6	53.6	27	342.3					

# XLV. — SPECIFIC GRAVITY AND PERCENTAGE OF ALCOHOL BY VOLUME SQUIBB

Per Cent Alcohol by Volume.	Specific Gravity at 15.56° C.	Per Cent Alcohol by Volume.	Specific Gravity at 15.56° C.	Per Cent Alcohol by Volume.	Specific Gravity at 15.56° C.	Per Cent Alcohol by Volume.	Specific Gravity at 15.56° C.
1	0.9985	26	0.9698	51	0.9323	76	0.8745
2	.9970	27	.9691	52	.9303	77	.8721
3	.9956	28	.9678	53	.9283	78	.8696
4	.9942	29	.9665	54	.9262	79	.8664
5	.9930	30	.9652	55	.9242	80	.8639
6	.9914	31	.9643	56	.9221	81	.8611
7	.9898	32	.9631	57	.9200	82	.8581
8	.9890	33	.9618	58	.9178	83	.8557
9	.9878	34	.9609	59	.9160	84	.8526
10	.9869	35	.9593	60	.9135	85	.8496
11	.9855	36	.9578	61	.9113	86	.8466
12	.9841	37	.9565	62	.9090	87	.8434
13	.9828	38	.9550	63	.9069	88	.8408
14	.9821	39	.9535	64	.9047	89	.8373
15	.9815	40	.9519	65	.9025	90	.8340
16	.9802	41	.9503	66	.9001	91	.8305
17	.9789	42	.9490	67	.8973	92	.8272
18	.9778	43	.9470	68	.8949	93	.8237
19	.9766	44	.9452	69	.8925	94	.8199
20	.9760	45	.9434	70	.8900	95	.8164
21	.9753	46	.9416	71	.8875	96	.8125
22	.9741	47	.9396	72	.8850	97	.8084
23	.9728	48	.9381	73	.8825	98	.8041
24	.9716	49	.9362	74	.8799	99	.7995
25	.9709	50	.9343	75	.8769	100	.7946

The tables giving the percentage of alcohol by weight and by volume do not agree with each other. The density of absolute alcohol given by Fownes is .7938 at 15.6° C. (60° F.) compared with water at the same temperature. Under the same conditions Tralles finds a density of .7946. Squibb has shown that the density of absolute alcohol must be at least as low as .7935. This is .003 lower than the density found by Fownes and corresponds to 0.1 per cent of alcohol. The table given by Squibb is based on the values given by Fownes for percentage by weight and those given by Tralles for percentage by volume.

To reduce sp. gr. at  $\frac{15.6^{\circ}}{15.6^{\circ}}$  to  $\frac{15.6^{\circ}}{4^{\circ}}$  multiply by .99908 or for  
sp. gr. 1.000 to .935 subtract .0009  
“ .934 to .825 “ .0008  
“ .824 “ .0007

XLVI. — PERCENTAGE OF ALCOHOL BY VOLUME AND  
BY WEIGHT \*

GILPIN, DRINKWATER, AND SQUIBB

Specific Gravity at 60° 60°F.	Alcohol			Specific Gravity at 60° 60°F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
1.00000..	0.00	00.0	0.00	.99473..	3.60	2.88	2.86
0.99984..	0.10	0.08	0.08	.99459..	3.70	2.96	2.94
.99968..	0.20	0.16	0.16	.99445..	3.80	3.04	3.02
.99953..	0.30	0.24	0.24	.99431..	3.90	3.12	3.10
.99937..	0.40	0.32	0.32	.99417..	4.00	3.20	3.18
.99923..	0.50	0.40	0.40	.99403..	4.10	3.28	3.26
.99907..	0.60	0.48	0.48	.99390..	4.20	3.36	3.34
.99892..	0.70	0.56	0.56	.99376..	4.30	3.44	3.42
.99877..	0.80	0.64	0.64	.99363..	4.40	3.52	3.50
.99861..	0.90	0.71	0.71	.99349..	4.50	3.60	3.58
.99849..	1.00	0.79	0.79	.99335..	4.60	3.68	3.66
.99834..	1.10	0.87	0.87	.99322..	4.70	3.76	3.74
.99819..	1.20	0.95	0.95	.99308..	4.80	3.84	3.81
.99805..	1.30	1.03	1.03	.99295..	4.90	3.92	3.89
.99790..	1.40	1.11	1.11	.99281..	5.00	4.00	3.97
.99775..	1.50	1.19	1.19	.99268..	5.10	4.08	4.05
.99760..	1.60	1.27	1.27	.99255..	5.20	4.16	4.13
.99745..	1.70	1.35	1.35	.99241..	5.30	4.24	4.21
.99731..	1.80	1.43	1.43	.99228..	5.40	4.32	4.29
.99716..	1.90	1.51	1.51	.99215..	5.50	4.40	4.37
.99701..	2.00	1.59	1.59	.99202..	5.60	4.48	4.44
.99687..	2.10	1.67	1.66	.99189..	5.70	4.56	4.52
.99672..	2.20	1.75	1.74	.99175..	5.80	4.64	4.60
.99658..	2.30	1.83	1.82	.99162..	5.90	4.72	4.68
.99643..	2.40	1.91	1.90	.99149..	6.00	4.80	4.76
.99629..	2.50	1.99	1.98	.99136..	6.10	4.88	4.84
.99615..	2.60	2.07	2.06	.99123..	6.20	4.96	4.92
.99600..	2.70	2.15	2.14	.99111..	6.30	5.05	5.00
.99586..	2.80	2.23	2.22	.99098..	6.40	5.13	5.08
.99571..	2.90	2.31	2.30	.99085..	6.50	5.21	5.16
.99557..	3.00	2.39	2.38	.99072..	6.60	5.29	5.24
.99543..	3.10	2.47	2.46	.99059..	6.70	5.37	5.32
.99529..	3.20	2.55	2.54	.99047..	6.80	5.45	5.40
.99515..	3.30	2.64	2.62	.99034..	6.90	5.53	5.48
.99501..	3.40	2.72	2.70	.99021..	7.00	5.61	5.56
.99487..	3.50	2.80	2.78	.99009..	7.10	5.69	5.64

\* Bulletin No. 65, U.S. Department of Agriculture.

Specific Gravity at 60° 60°F.	Alcohol			Specific Gravity at 60° 60°F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
.98996..	7.20	5.77	5.72	.98513..	11.30	9.11	8.97
.98984..	7.30	5.86	5.80	.98502..	11.40	9.19	9.05
.98971..	7.40	5.94	5.88	.98491..	11.50	9.27	9.13
.98959..	7.50	6.02	5.96	.98479..	11.60	9.35	9.21
.98947..	7.60	6.10	6.04	.98468..	11.70	9.43	9.29
.98934..	7.70	6.18	6.11	.98457..	11.80	9.51	9.36
.98922..	7.80	6.26	6.19	.98446..	11.90	9.59	9.44
.98909..	7.90	6.34	6.27	.98435..	12.00	9.67	9.52
.98897..	8.00	6.42	6.35	.98424..	12.10	9.75	9.60
.98885..	8.10	6.50	6.43	.98413..	12.20	9.83	9.68
.98873..	8.20	6.58	6.51	.98402..	12.30	9.92	9.76
.98861..	8.30	6.67	6.59	.98391..	12.40	10.00	9.84
.98849..	8.40	6.75	6.67	.98381..	12.50	10.08	9.92
.98837..	8.50	6.83	6.75	.98370..	12.60	10.16	10.00
.98825..	8.60	6.91	6.83	.98359..	12.70	10.24	10.07
.98813..	8.70	6.99	6.91	.98348..	12.80	10.33	10.15
.98801..	8.80	7.07	6.99	.98337..	12.90	10.41	10.23
.98789..	8.90	7.15	7.07	.98326..	13.00	10.49	10.31
.98777..	9.00	7.23	7.14	.98315..	13.10	10.57	10.39
.98765..	9.10	7.31	7.22	.98305..	13.20	10.65	10.47
.98754..	9.20	7.39	7.30	.98294..	13.30	10.74	10.55
.98742..	9.30	7.48	7.38	.98283..	13.40	10.82	10.63
.98730..	9.40	7.56	7.46	.98273..	13.50	10.90	10.71
.98719..	9.50	7.64	7.54	.98262..	13.60	10.98	10.79
.98707..	9.60	7.72	7.62	.98251..	13.70	11.06	10.87
.98695..	9.70	7.80	7.70	.98240..	13.80	11.15	10.95
.98683..	9.80	7.88	7.78	.98230..	13.90	11.23	11.03
.98672..	9.90	7.96	7.85	.98219..	14.00	11.31	11.11
.98660..	10.00	8.04	7.93	.98209..	14.10	11.39	11.19
.98649..	10.10	8.12	8.01	.98198..	14.20	11.47	11.27
.98637..	10.20	8.20	8.09	.98188..	14.30	11.56	11.35
.98626..	10.30	8.29	8.17	.98177..	14.40	11.64	11.43
.98614..	10.40	8.37	8.25	.98167..	14.50	11.72	11.51
.98603..	10.50	8.45	8.33	.98156..	14.60	11.80	11.59
.98592..	10.60	8.53	8.41	.98146..	14.70	11.88	11.67
.98580..	10.70	8.61	8.49	.98135..	14.80	11.97	11.75
.98569..	10.80	8.70	8.57	.98125..	14.90	12.05	11.82
.98557..	10.90	8.78	8.65	.98114..	15.00	12.13	11.90
.98546..	11.00	8.86	8.73	.98104..	15.10	12.21	11.98
.98535..	11.10	8.94	8.81	.98093..	15.20	12.29	12.06
.98524..	11.20	9.02	8.89	.98083..	15.30	12.38	12.14

Specific Gravity at 60°/60°F.	Alcohol			Specific Gravity at 60°/60°F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
.98073..	15.40	12.46	12.22	.97658..	19.50	15.84	15.47
.98063..	15.50	12.54	12.30	.97648..	19.60	15.93	15.55
.98052..	15.60	12.62	12.37	.97638..	19.70	16.01	15.63
.98042..	15.70	12.70	12.45	.97628..	19.80	16.09	15.71
.98032..	15.80	12.79	12.53	.97618..	19.90	16.18	15.79
.98021..	15.90	12.87	12.61	.97608..	20.00	16.26	15.87
.98011..	16.00	12.95	12.69	.97598..	20.10	16.34	15.95
.98001..	16.10	13.03	12.77	.97588..	20.20	16.42	16.03
.97991..	16.20	13.12	12.85	.97578..	20.30	16.51	16.10
.97980..	16.30	13.20	12.93	.97568..	20.40	16.59	16.18
.97970..	16.40	13.29	13.01	.97558..	20.50	16.67	16.26
.97960..	16.50	13.37	13.09	.97547..	20.60	16.75	16.34
.97950..	16.60	13.45	13.17	.97537..	20.70	16.84	16.42
.97940..	16.70	13.53	13.25	.97527..	20.80	16.92	16.50
.97929..	16.80	13.62	13.33	.97517..	20.90	17.01	16.58
.97919..	16.90	13.70	13.41	.97507..	21.00	17.09	16.66
.97909..	17.00	13.78	13.49	.97497..	21.10	17.17	16.74
.97899..	17.10	13.86	13.57	.97487..	21.20	17.26	16.82
.97889..	17.20	13.94	13.65	.97477..	21.30	17.34	16.90
.97879..	17.30	14.03	13.73	.97467..	21.40	17.43	16.98
.97869..	17.40	14.11	13.81	.97457..	21.50	17.51	17.06
.97859..	17.50	14.19	13.89	.97446..	21.60	17.59	17.14
.97848..	17.60	14.27	13.96	.97436..	21.70	17.67	17.22
.97838..	17.70	14.35	14.04	.97426..	21.80	17.76	17.30
.97828..	17.80	14.44	14.12	.97416..	21.90	17.84	17.38
.97818..	17.90	14.52	14.20	.97406..	22.00	17.92	17.46
.97808..	18.00	14.60	14.28	.97396..	22.10	18.00	17.54
.97798..	18.10	14.68	14.36	.97386..	22.20	18.09	17.62
.97788..	18.20	14.77	14.44	.97375..	22.30	18.17	17.70
.97778..	18.30	14.85	14.52	.97365..	22.40	18.26	17.78
.97768..	18.40	14.94	14.60	.97355..	22.50	18.34	17.86
.97758..	18.50	15.02	14.68	.97345..	22.60	18.42	17.94
.97748..	18.60	15.10	14.76	.97335..	22.70	18.51	18.02
.97738..	18.70	15.18	14.84	.97324..	22.80	18.59	18.10
.97728..	18.80	15.27	14.92	.97314..	22.90	18.68	18.18
.97718..	18.90	15.38	15.00	.97304..	23.00	18.76	18.26
.97708..	19.00	15.43	15.08	.97294..	23.10	18.84	18.33
.97698..	19.10	15.51	15.15	.97283..	23.20	18.92	18.41
.97688..	19.20	15.59	15.23	.97273..	23.30	19.01	18.49
.97678..	19.30	15.68	15.31	.97263..	23.40	19.09	18.57
.97668..	19.40	15.76	15.39	.97253..	23.50	19.17	18.65

Specific Gravity at 60° 60°F.	Alcohol			Specific Gravity at 60° 60°F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
.97242..	23.60	19.25	18.73	.96805..	27.70	22.71	21.98
.97232..	23.70	19.34	18.81	.96794..	27.80	22.79	22.06
.97222..	23.80	19.42	18.88	.96783..	27.90	22.88	22.14
.97211..	23.90	19.51	18.96	.96772..	28.00	22.96	22.22
.97201..	24.00	19.59	19.04	.96761..	28.10	23.04	22.30
.97191..	24.10	19.67	19.12	.96749..	28.20	23.13	22.38
.97180..	24.20	19.76	19.20	.96738..	28.30	23.21	22.45
.97170..	24.30	19.84	19.28	.96726..	28.40	23.30	22.53
.97159..	24.40	19.93	19.36	.96715..	28.50	23.38	22.61
.97149..	24.50	20.01	19.44	.96704..	28.60	23.47	22.69
.97139..	24.60	20.09	19.52	.96692..	28.70	23.55	22.77
.97128..	24.70	20.18	19.60	.96681..	28.80	23.64	22.85
.97118..	24.80	20.26	19.68	.96669..	28.90	23.72	22.93
.97107..	24.90	20.35	19.76	.96658..	29.00	23.81	23.01
.97097..	25.00	20.43	19.84	.96646..	29.10	23.89	23.09
.97086..	25.10	20.51	19.92	.96635..	29.20	23.98	23.17
.97076..	25.20	20.60	20.00	.96623..	29.30	24.06	23.25
.97065..	25.30	20.68	20.08	.96611..	29.40	24.15	23.33
.97055..	25.40	20.77	20.16	.96600..	29.50	24.23	23.41
.97044..	25.50	20.85	20.24	.96587..	29.60	24.32	23.49
.97033..	25.60	20.93	20.32	.96576..	29.70	24.40	23.57
.97023..	25.70	21.02	20.40	.96564..	29.80	24.49	23.65
.97012..	25.80	21.10	20.47	.96553..	29.90	24.57	23.73
.97001..	25.90	21.19	20.55	.96541..	30.00	24.66	23.81
.96991..	26.00	21.27	20.63	.96529..	30.10	24.74	23.89
.96980..	26.10	21.35	20.71	.96517..	30.20	24.83	23.97
.96969..	26.20	21.44	20.79	.96505..	30.30	24.91	24.04
.96959..	26.30	21.52	20.87	.96493..	30.40	25.00	24.12
.96949..	26.40	21.61	20.95	.96481..	30.50	25.08	24.20
.96937..	26.50	21.69	21.03	.96469..	30.60	25.17	24.28
.96926..	26.60	21.77	21.11	.96457..	30.70	25.25	24.36
.96915..	26.70	21.86	21.19	.96445..	30.80	25.34	24.44
.96905..	26.80	21.94	21.27	.96433..	30.90	25.42	24.52
.96894..	26.90	22.03	21.35	.96421..	31.00	25.51	24.60
.96883..	27.00	22.11	21.43	.96409..	31.10	25.60	24.68
.96872..	27.10	22.20	21.51	.96396..	31.20	25.68	24.76
.96861..	27.20	22.28	21.59	.96384..	31.30	25.77	24.84
.96850..	27.30	22.37	21.67	.96372..	31.40	25.85	24.92
.96839..	27.40	22.45	21.75	.96360..	31.50	25.94	25.00
.96828..	27.50	22.54	21.83	.96347..	31.60	26.03	25.08
.96816..	27.60	22.62	21.90	.96335..	31.70	26.11	25.16

Specific Gravity at 60°/60°F.	Alcohol			Specific Gravity at 60°/60°F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
.96323..	31.80	26.20	25.24	.95787..	35.90	29.74	28.49
.96310..	31.90	26.28	25.32	.95773..	36.00	29.83	28.57
.96298..	32.00	26.37	25.40	.95759..	36.10	29.92	28.65
.96285..	32.10	26.46	25.48	.95745..	36.20	30.00	28.73
.96273..	32.20	26.54	25.56	.95731..	36.30	30.09	28.81
.96260..	32.30	26.63	25.64	.95717..	36.40	30.17	28.88
.96248..	32.40	26.71	25.71	.95703..	36.50	30.26	28.96
.96235..	32.50	26.80	25.79	.95688..	36.60	30.35	29.04
.96222..	32.60	26.89	25.87	.95674..	36.70	30.44	29.12
.96210..	32.70	26.97	25.95	.95660..	36.80	30.52	29.20
.96197..	32.80	27.06	26.03	.95646..	36.90	30.61	29.29
.96185..	32.90	27.14	26.11	.95632..	37.00	30.70	29.36
.96172..	33.00	27.23	26.19	.95618..	37.10	30.79	29.44
.96159..	33.10	27.32	26.27	.95603..	37.20	30.88	29.52
.96146..	33.20	27.40	26.35	.95589..	37.30	30.96	29.60
.96133..	33.30	27.49	26.43	.95574..	37.40	31.05	29.68
.96120..	33.40	27.57	26.51	.95560..	37.50	31.14	29.76
.96108..	33.50	27.66	26.59	.95545..	37.60	31.23	29.84
.96095..	33.60	27.75	26.67	.95531..	37.70	31.32	29.92
.96082..	33.70	27.83	26.75	.95516..	37.80	31.40	30.00
.96069..	33.80	27.92	26.82	.95502..	37.90	31.49	30.08
.96056..	33.90	28.00	26.90	.95487..	38.00	31.58	30.16
.96043..	34.00	28.09	26.98	.95472..	38.10	31.67	30.24
.96030..	34.10	28.18	27.06	.95457..	38.20	31.76	30.32
.96016..	34.20	28.26	27.14	.95442..	38.30	31.85	30.40
.96003..	34.30	28.35	27.22	.95427..	38.40	31.94	30.48
.95990..	34.40	28.43	27.30	.95413..	38.50	32.03	30.56
.95977..	34.50	28.52	27.38	.95398..	38.60	32.12	30.64
.95963..	34.60	28.61	27.46	.95383..	30.70	32.20	30.72
.95950..	34.70	28.70	27.54	.95368..	30.80	32.29	30.79
.95937..	34.80	28.78	27.62	.95353..	30.90	32.37	30.87
.95923..	34.90	28.87	27.70	.95338..	39.00	32.46	30.95
.95910..	35.00	28.96	27.78	.95323..	39.10	32.55	31.03
.95896..	35.10	29.05	27.86	.95307..	39.20	32.64	31.11
.95883..	35.20	29.13	27.94	.95292..	39.30	32.72	31.18
.95869..	35.30	29.22	28.02	.95277..	39.40	32.81	31.26
.95855..	35.40	29.30	28.09	.95262..	39.50	32.90	31.34
.95842..	35.50	29.38	28.17	.95246..	39.60	32.99	31.42
.95828..	35.60	29.48	28.25	.95231..	39.70	33.08	31.50
.95814..	35.70	29.57	28.33	.95216..	39.80	33.17	31.58
.95800..	35.80	29.65	28.41	.95200..	39.90	33.27	31.66



Specific Gravity at 60° 60°F.	Alcohol			Specific Gravity at 60° 60°F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
.95185..	40.00	33.35	31.74	.94519..	44.10	37.02	34.99
.95169..	40.10	33.44	31.82	.94502..	44.20	37.11	35.07
.95154..	40.20	33.53	31.90	.94484..	44.30	37.21	35.15
.95138..	40.30	33.61	31.98	.94467..	44.40	37.30	35.23
.95122..	40.40	33.70	32.06	.94450..	44.50	37.39	35.31
.95107..	40.50	33.79	32.14	.94433..	44.60	37.48	35.39
.95091..	40.60	33.88	32.22	.94416..	44.70	37.57	35.47
.95075..	40.70	33.97	32.30	.94398..	44.80	37.66	35.55
.95059..	40.80	34.06	32.38	.94381..	44.90	37.76	35.63
.95044..	40.90	34.15	32.46	.94364..	45.00	37.84	35.71
.95028..	41.00	34.24	32.54	.94346..	45.10	37.93	35.79
.95012..	41.10	34.33	32.62	.94329..	45.20	38.02	35.87
.94996..	41.20	34.42	32.70	.94311..	45.30	38.12	35.95
.94980..	41.30	34.50	32.78	.94294..	45.40	38.21	36.03
.94964..	41.40	34.59	32.86	.94276..	45.50	38.30	36.11
.94948..	41.50	34.68	32.93	.94258..	45.60	38.39	36.19
.94932..	41.60	34.77	33.01	.94241..	45.70	38.48	36.26
.94916..	41.70	34.86	33.09	.94223..	45.80	38.57	36.34
.94900..	41.80	34.95	33.17	.94206..	45.90	38.66	36.42
.94884..	41.90	35.04	33.25	.94188..	46.00	38.75	36.50
.94868..	42.00	35.13	33.33	.94170..	46.10	38.84	36.58
.94852..	42.10	35.22	33.41	.94152..	46.20	38.93	36.66
.94835..	42.20	35.31	33.49	.94134..	46.30	39.03	36.74
.94810..	42.30	35.40	33.57	.94116..	46.40	39.12	36.82
.94802..	42.40	35.49	33.65	.94098..	46.50	39.21	36.90
.94786..	42.50	35.58	33.73	.94080..	46.60	39.30	36.98
.94770..	42.60	35.67	33.81	.94062..	46.70	39.39	37.06
.94753..	42.70	35.76	33.89	.94044..	46.80	39.49	37.13
.94737..	42.80	35.85	33.97	.94026..	46.90	39.58	37.21
.94720..	42.90	35.94	34.04	.94008..	47.00	39.67	37.29
.94704..	43.00	36.03	34.12	.93990..	47.10	39.76	37.37
.94687..	43.10	36.12	34.20	.93971..	47.20	39.85	37.45
.94670..	43.20	36.21	34.28	.93953..	47.30	39.95	37.53
.94654..	43.30	36.30	34.36	.93934..	47.40	40.04	37.61
.94637..	43.40	36.39	34.44	.93916..	47.50	40.13	37.69
.94620..	43.50	36.48	34.52	.93898..	47.60	40.22	37.77
.94603..	43.60	36.57	34.60	.93879..	47.70	40.32	37.85
.94586..	43.70	36.66	34.68	.93861..	47.80	40.41	37.93
.94570..	43.80	36.75	34.76	.93842..	47.90	40.51	38.01
.94553..	43.90	36.84	34.84	.93824..	48.00	40.60	38.09
.94536..	44.00	36.93	34.91	.93805..	48.10	40.69	38.17

Specific Gravity $\frac{60^{\circ}}{60^{\circ}}F.$	Alcohol			Specific Gravity at $\frac{60^{\circ}}{60^{\circ}}F.$	Alcohol		
	per cent by volume	per cent by volume	per cent by weight		Grams per 100 c.c.	per cent by weight	Grams per 100 c.c.
.93786..	48.20	40.78	38.25	.93617..	49.10	41.61	38.96
.93768..	48.30	40.88	38.33	.93598..	49.20	41.71	39.04
.93749..	48.40	40.97	38.41	.93578..	49.30	41.80	39.12
.93730..	48.50	41.06	38.49	.93559..	49.40	41.90	39.20
.93711..	48.60	41.15	38.57	.93540..	49.50	41.99	39.28
.93692..	48.70	41.24	38.65	.93521..	49.60	42.08	39.36
.93679..	48.80	41.34	38.72	.93502..	49.70	42.18	39.44
.93655..	48.90	41.43	38.80	.93482..	49.80	42.27	39.52
.93636..	49.00	41.52	38.88	.93463..	49.90	42.37	39.60

XLVII. — METHYL ALCOHOL AT  $\frac{15.56^{\circ}}{4^{\circ}}$   
DITTMAR AND FAWSITT

Specific Gravity.	Per Cent by Weight.	Specific Gravity.	Per Cent by Weight.	Specific Gravity.	Per Cent by Weight.	Specific Gravity.	Per Cent by Weight.
0.99729	1	0.94055	38	0.89133	63	0.84521	82
0.99554	2	0.93697	40	0.88905	64	0.84262	83
0.99214	4	0.93335	42	0.88676	65	0.84001	84
0.98893	6	0.92975	44	0.88443	66	0.83738	85
0.98569	8	0.92610	46	0.88208	67	0.83473	86
0.98262	10	0.92237	48	0.87970	68	0.83207	87
0.97962	12	0.91855	50	0.87714	69	0.82938	88
0.97668	14	0.91661	51	0.87487	70	0.82668	89
0.97379	16	0.91465	52	0.87262	71	0.83396	90
0.97039	18	0.91267	53	0.87021	72	0.82123	91
0.96808	20	0.91066	54	0.86779	73	0.81849	92
0.96524	22	0.90863	55	0.86535	74	0.81572	93
0.96238	24	0.90657	56	0.86290	75	0.81293	94
0.95947	26	0.90450	57	0.86042	76	0.81013	95
0.95655	28	0.90239	58	0.85793	77	0.80731	96
0.95355	30	0.90026	59	0.85542	78	0.80448	97
0.95053	32	0.89798	60	0.85290	79	0.80164	98
0.94732	34	0.89580	61	0.85035	80	0.79876	99
0.94399	36	0.89358	62	0.84779	81	0.79589	100

XLVIII.—SPECIFIC GRAVITY AQUEOUS SOLUTIONS  
CHEMICALLY PURE GLYCERENE

Per Cent Glycerene.	Gerlach.		Skalweit.	Per Cent Glycerene.	Gerlach.		Skalweit.
	Sp. Gr. at 15° C. Water at 15° = 1.	Sp. Gr. at 20° C. Water at 20° = 1.	Sp. Gr. at 15° C.		Sp. Gr. at 15° C. Water at 15° = 1.	Sp. Gr. at 20° C. Water at 20° = 1.	Sp. Gr. at 15°.
0	1.0000	1.0000	1.0000	36			1.0912
1			1.0024	37			1.0939
2			1.0048	38			1.0966
3			1.0072	39			1.0993
4			1.0096	40	1.1020	1.1010	1.1020
5			1.0120	41			1.1047
6			1.0144	42			1.1074
7			1.0168	43			1.1101
8			1.0192	44			1.1128
9			1.0216	45	1.1155	1.1145	1.1155
10	1.0245	1.0235	1.0240	46			1.1182
11			1.0265	47			1.1209
12			1.0290	48			1.1236
13			1.0315	49			1.1263
14			1.0340	50	1.1294	1.1280	1.1290
15			1.0365	51			1.1318
16			1.0390	52			1.1346
17			1.0415	53			1.1374
18			1.0440	54			1.1402
19			1.0465	55	1.1430	1.1415	1.1430
20	1.0490	1.0480	1.0490	56			1.1458
21			1.0516	57			1.1486
22			1.0542	58			1.1514
23			1.0568	59			1.1542
24			1.0594	60	1.1570	1.1550	1.1570
25	1.0620	1.0610	1.0620	61			1.1599
26			1.0646	62			1.1628
27			1.0672	63			1.1657
28			1.0698	64			1.1686
29			1.0724	65	1.1711	1.1685	1.1715
30	1.0750	1.0740	1.0750	66			1.1743
31			1.0777	67			1.1771
32			1.0804	68			1.1799
33			1.0831	69			1.1827
34			1.0858	70	1.1850	1.1820	1.1855
35	1.0885	1.0875	1.0885	71	1.1878	1.1847	1.1882

Per Cent Glycerene.	Gerlach.		Skalweit.	Per Cent Glycerene.	Gerlach.		Skalweit.
	Sp. Gr. at 15° C. Water at 15° = 1.	Sp. Gr. at 20° C. Water at 20° = 1.	Sp. Gr. at 15°.		Sp. Gr. at 15° C. Water at 15° = 1.	Sp. Gr. at 20° C. Water at 20° = 1.	Sp. Gr. at 15°.
72	1.1906	1.1874	1.1909	87	1.2319	1.2279	1.2314
73	1.1934	1.1901	1.1936	88	1.2346	1.2306	1.2341
74	1.1962	1.1928	1.1963	89	1.2373	1.2333	1.2368
75	1.1990	1.1955	1.1990	90	1.2400	1.2360	1.2395
76	1.2018	1.1982	1.2017	91	1.2425	1.2386	1.2421
77	1.2046	1.2009	1.2044	92	1.2451	1.2412	1.2447
78	1.2074	1.2036	1.2071	93	1.2476	1.2438	1.2473
79	1.2102	1.2063	1.2098	94	1.2501	1.2464	1.2499
80	1.2130	1.2090	1.2125	95	1.2526	1.2490	1.2525
81	1.2157	1.2117	1.2152	96	1.2552	1.2516	1.2550
82	1.2184	1.2144	1.2179	97	1.2577	1.2542	1.2575
83	1.2211	1.2171	1.2206	98	1.2602	1.2568	1.2600
84	1.2238	1.2198	1.2233	99	1.2628	1.2594	1.2625
85	1.2265	1.2225	1.2260	100	1.2653	1.2620	1.2650
86	1.2292	1.2252	1.2287				

## XLIX. — AMMONIUM SULPHATE SOLUTION AT 19°

SCHIFF

Specific Gravity.	Per Cent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .	Specific Gravity.	Per Cent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .	Specific Gravity.	Per Cent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .	Specific Gravity.	Per Cent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .	Specific Gravity.	Per Cent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .
1.0057	1	1.0632	11	1.1207	21	1.1780	31	1.2343	41
1.0115	2	1.0690	12	1.1265	22	1.1836	32	1.2402	42
1.0172	3	1.0747	13	1.1323	23	1.1892	33	1.2462	43
1.0230	4	1.0805	14	1.1381	24	1.1948	34	1.2522	44
1.0287	5	1.0862	15	1.1439	25	1.2004	35	1.2583	45
1.0345	6	1.0920	16	1.1496	26	1.2060	36	1.2644	46
1.0403	7	1.0977	17	1.1554	27	1.2116	37	1.2705	47
1.0460	8	1.1035	18	1.1612	28	1.2172	38	1.2766	48
1.0518	9	1.1092	19	1.1670	29	1.2228	39	1.2828	49
1.0575	10	1.1149	20	1.1724	30	1.2284	40	1.2890	50

# L. — AMMONIUM CHLORIDE SOLUTION AT 15°

GERLACH

Specific Gravity.	Per Cent $\text{NH}_4\text{Cl}$ .	Specific Gravity.	Per Cent $\text{NH}_4\text{Cl}$ .	Specific Gravity.	Per Cent $\text{NH}_4\text{Cl}$ .	Specific Gravity.	Per Cent $\text{NH}_4\text{Cl}$ .	Specific Gravity.	Per Cent $\text{NH}_4\text{Cl}$ .
1.00316	1	1.02180	7	1.03947	13	1.05648	19	1.07304	25
1.00632	2	1.02481	8	1.04325	14	1.05929	20	1.07575	26
1.00948	3	1.02781	9	1.04524	15	1.06204	21	1.07658	26.297
1.01264	4	1.03081	10	1.04805	16	1.06479	22		
1.01580	5	1.03370	11	1.05086	17	1.06754	23		
1.01880	6	1.03658	12	1.05367	18	1.07029	24		

# LI. — AVAILABLE CHLORINE, IN BLEACHING POWDER SOLUTION AT 15°

LUNGE AND BACHOFFEN

Specific Gravity.	Grams Cl per l.	Specific Gravity.	Grams Cl per l.	Specific Gravity.	Grams Cl per l.	Specific Gravity.	Grams Cl per l.
1.0000	traces	1.0300	17.36	1.0650	39.10	1.1000	61.50
1.0025	1.40	1.0350	20.44	1.0700	42.31	1.1050	64.50
1.0050	2.71	1.0400	23.75	1.0750	45.70	1.1060	65.33
1.0100	5.58	1.0450	26.62	1.0800	49.96	1.1100	68.00
1.0150	8.48	1.0500	29.60	1.0850	52.27	1.1105	68.40
1.0200	11.41	1.0550	32.68	1.0900	55.18	1.1150	71.50
1.0250	14.47	1.0600	35.81	1.0950	58.40	1.1155	71.79

# LII. — CUPRIC CHLORIDE SOLUTION AT 17.5°

FRANZ

Specific Gravity.	Per Cent $\text{CuCl}_2$ .	Specific Gravity.	Per Cent $\text{CuCl}_2$ .	Specific Gravity.	Per Cent $\text{CuCl}_2$ .	Specific Gravity.	Per Cent $\text{CuCl}_2$ .
1.0182	2	1.1178	12	1.2501	22	1.3950	32
1.0364	4	1.1436	14	1.2779	24	1.4287	34
1.0548	6	1.1696	16	1.3058	26	1.4615	36
1.0734	8	1.1958	18	1.3338	28	1.4949	38
1.0920	10	1.2223	20	1.3618	30	1.5284	40

LIII. — CUPRIC SULPHATE SOLUTION AT 18°

Specific Gravity.	Per Cent $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .
1.0063	1	1.0582	9	1.1135	17	1.1699	24
1.0126	2	1.0649	10	1.1208	18	1.1738	25
1.0190	3	1.0716	11	1.1281	19	1.1817	26
1.0254	4	1.0785	12	1.1354	20	1.1898	27
1.0319	5	1.0854	13	1.1427	21	1.1980	28
1.0384	6	1.0923	14	1.1501	22	1.2063	29
1.0450	7	1.0993	15	1.1585	23	1.2146	30
1.0516	8	1.1063	16				

LIV. — FERRIC CHLORIDE SOLUTION AT 17.5°

FRANZ

Specific Gravity.	Per Cent $\text{Fe}_2\text{Cl}_6$ .	Specific Gravity.	Per Cent $\text{Fe}_2\text{Cl}_6$ .	Specific Gravity.	Per Cent $\text{Fe}_2\text{Cl}_6$ .	Specific Gravity.	Per Cent $\text{Fe}_2\text{Cl}_6$ .	Specific Gravity.	Per Cent $\text{Fe}_2\text{Cl}_6$ .
1.0146	2	1.1054	14	1.2155	26	1.4311	38	1.4867	50
1.0292	4	1.1215	16	1.2365	28	1.3622	40	1.5153	52
1.0439	6	1.1378	18	1.2568	30	1.3870	42	1.5439	54
1.0587	8	1.1542	20	1.2778	32	1.4118	44	1.5729	56
1.0734	10	1.1746	22	1.2988	34	1.4367	46	1.6023	58
1.0894	12	1.1950	24	1.3199	36	1.4617	48	1.6317	60

# LV.—FERROUS SULPHATE AT 15°

GERLACH

Specific Gravity.	Per Cent FeSO <sub>4</sub> .	Per Cent FeSO <sub>4</sub> . 7H <sub>2</sub> O.	Specific Gravity.	Per Cent FeSO <sub>4</sub> .	Per Cent FeSO <sub>4</sub> . 7H <sub>2</sub> O.	Specific Gravity.	Per Cent FeSO <sub>4</sub> .	Per Cent FeSO <sub>4</sub> . 7H <sub>2</sub> O.
1.005	0.565	1	1.0267	2.811	5	1.1430	15.834	25
1.011	1.130	2	1.0537	5.784	10	1.1738	19.622	30
1.016	1.694	3	1.0823	8.934	15	1.2063	23.672	35
1.021	2.258	4	1.1124	12.277	20	1.2391	27.995	40

# LVI.—FERRIC SULPHATE AT 18°

HAGER

GIVING PERCENTAGE OF METALLIC IRON

Specific Gravity.	Per Cent Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .	Per Cent Fe.	Specific Gravity.	Per Cent Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .	Per Cent Fe.	Specific Gravity.	Per Cent Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .	Per Cent Fe.
1.017	2	0.56	1.173	17	4.76	1.351	31	8.68
1.027	3	0.84	1.184	18	5.04	1.365	32	8.96
1.036	4	1.12	1.196	19	5.35	1.380	33	9.24
1.046	5	1.40	1.208	20	5.60	1.395	34	9.52
1.057	6	1.68	1.220	21	5.88	1.411	35	9.80
1.067	7	1.96	1.232	22	6.16	1.427	36	10.08
1.077	8	2.24	1.245	23	6.44	1.442	37	10.36
1.087	9	2.52	1.258	24	6.72	1.458	38	10.67
1.097	10	2.80	1.271	25	7.00	1.474	39	10.92
1.107	11	3.08	1.284	26	7.28	1.490	40	11.20
1.118	12	3.36	1.297	27	7.56	1.506	41	11.48
1.129	13	3.64	1.310	28	7.84	1.523	42	11.76
1.140	14	3.92	1.323	29	8.12	1.540	43	12.04
1.151	15	4.20	1.337	30	8.40	1.557	44	12.32
1.162	16	4.48						

LVII. — POTASSIUM CHROMATE SOLUTION AT 19.5°

SCHIFF

Specific Gravity.	Per Cent $K_2Cr_2O_4$ .	Specific Gravity.	Per Cent $K_2Cr_2O_4$ .	Specific Gravity.	Per Cent $K_2Cr_2O_4$ .	Specific Gravity.	Per Cent $K_2Cr_2O_4$ .	Specific Gravity.	Per Cent $K_2Cr_2O_4$ .
1.0080	1	1.0750	9	1.1474	17	1.2274	25	1.3151	33
1.0161	2	1.0837	10	1.1570	18	1.2379	26	1.3268	34
1.0243	3	1.0925	11	1.1667	19	1.2485	27	1.3386	35
1.0325	4	1.1014	12	1.1765	20	1.2592	28	1.3505	36
1.0408	5	1.1104	13	1.1864	21	1.2700	29	1.3625	37
1.0492	6	1.1195	14	1.1964	22	1.2808	30	1.3746	38
1.0576	7	1.1287	15	1.2066	23	1.2921	31	1.3868	39
1.0663	8	1.1380	16	1.2169	24	1.3035	32	1.3991	40

LVIII. — POTASSIUM DICHROMATE SOLUTION AT 19.5°

KREMERS AND GERLACH

Specific Gravity.	Per Cent $K_2Cr_2O_7$ .	Specific Gravity.	Per Cent $K_2Cr_2O_7$ .	Specific Gravity.	Per Cent $K_2Cr_2O_7$ .	Specific Gravity.	Per Cent $K_2Cr_2O_7$ .
1.007	1	1.037	5	1.065	9	1.095	13
1.015	2	1.043	6	1.073	10	1.102	14
1.022	3	1.050	7	1.080	11	1.110	15
1.030	4	1.056	8	1.087	12		

LIX. — SODIUM CHLORIDE SOLUTION AT 15°

GERLACH

Specific Gravity.	Per Cent NaCl.	Specific Gravity.	Per Cent NaCl.	Specific Gravity.	Per Cent NaCl.	Specific Gravity.	Per Cent NaCl.
1.00725	1	1.05851	8	1.11146	15	1.16755	22
1.01450	2	1.06593	9	1.11938	16	1.17580	23
1.02174	3	1.07335	10	1.12730	17	1.18404	24
1.02899	4	1.08097	11	1.13523	18	1.19228	25
1.03624	5	1.08859	12	1.14315	19	1.20098	26
1.04366	6	1.09622	13	1.15107	20	1.20433	26.395
1.05108	7	1.10384	14	1.15931	21		



LX. — SODIUM DICHROMATE SOLUTION

STANLEY

Specific Gravity.	Per Cent $\text{Na}_2\text{Cr}_2\text{O}_7$ .	Specific Gravity.	Per Cent $\text{Na}_2\text{Cr}_2\text{O}_7$ .	Specific Gravity.	Per Cent $\text{Na}_2\text{Cr}_2\text{O}_7$ .
1.007	1	1.141	20	1.280	40
1.035	5	1.171	25	1.313	45
1.071	10	1.208	30	1.343	50
1.105	15	1.245	35		

LXI. — STANNIC CHLORIDE SOLUTION AT 15°

GERLACH

Specific Gravity.	Per Cent $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ .
1.012	2	1.137	22	1.293	42	1.491	62	1.759	82
1.024	4	1.151	24	1.310	44	1.514	64	1.791	84
1.036	6	1.165	26	1.329	46	1.538	66	1.824	86
1.048	8	1.180	28	1.347	48	1.563	68	1.859	88
1.059	10	1.195	30	1.366	50	1.587	70	1.893	90
1.072	12	1.210	32	1.386	52	1.614	72	1.932	92
1.084	14	1.2268	34	1.406	54	1.641	74	1.969	94
1.097	16	1.242	36	1.426	56	1.669	76	1.988	96
1.110	18	1.259	38	1.447	58	1.698	78		
1.1236	20	1.2755	40	1.468	60	1.727	80		

LXII. — STANNOUS CHLORIDE SOLUTION AT 15°

GERLACH

Specific Gravity.	Per Cent $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .
1.013	2	1.128	18	1.268	34	1.445	50	1.677	66
1.026	4	1.144	20	1.288	36	1.471	52	1.711	68
1.040	6	1.161	22	1.309	38	1.497	54	1.745	70
1.054	8	1.177	24	1.330	40	1.525	56	1.783	72
1.068	10	1.194	26	1.352	42	1.554	58	1.821	74
1.083	12	1.212	28	1.374	44	1.582	60	1.840	75
1.097	14	1.230	30	1.395	46	1.613	62		
1.113	16	1.249	32	1.421	48	1.644	64		

LXIII. — ZINC, CADMIUM AND LITHIUM CHLORIDE

AT 19.5°

KRÄMER

Specific Gravity			Per Cent Salt.	Specific Gravity			Per Cent Salt.
$\text{ZnCl}_2$ .	$\text{CdCl}_2$ .	$\text{LiCl}$ .		$\text{ZnCl}_2$ .	$\text{CdCl}_2$ .	$\text{LiCl}$ .	
1.045	1.045		5	1.352			35
1.091	1.089	1.0580	10	1.420	1.472	1.2557	40
1.137	1.140		15	1.488			45
1.186	1.195	1.1172	20	1.566	1.656		50
1.238	1.256		25	1.650			55
1.291	1.321	1.1819	30	1.740	1.890		60

LXIV. — ZINC SULPHATE SOLUTION AT 15°

Specific Gravity.	Per Cent $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ .
1.029	5	1.167	25	1.310	45
1.059	10	1.193	30	1.352	50
1.091	15	1.231	35	1.399	55
1.124	20	1.271	40	1.445	60

LXV.—DENSITY OF WATER AT 0° TO 36°

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF WATER FREE FROM AIR  
AT TEMPERATURES OF 0 TO 36 CENTIGRADE BY THE HYDROGEN THER-  
MOMETER — ACCORDING TO THIESEN, SCHEEL, AND DIESSELHORST  
WISS. ABH. D. PHYS. — TECHN. REICHSANST. 3, 68: 1900

Degrees.	Tenths of Degrees.									
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	0.999868	874	881	887	893	899	905	911	916	922
1	927	932	936	941	945	950	954	957	961	965
2	968	971	974	977	980	982	985	987	989	991
3	992	994	995	996	997	998	999	999	*000	*000
4	1.000000	000	000	*999	*999	*998	*997	*996	*995	*993
5	0.999992	990	988	986	984	982	979	977	974	971
6	986	965	962	958	954	951	947	943	938	934
7	929	925	920	915	910	904	899	893	888	882
8	876	870	864	857	851	844	837	830	823	816
9	808	801	793	785	778	769	761	753	744	736
10	727	718	709	700	691	681	672	662	652	642
11	632	622	612	601	591	580	569	558	547	536
12	525	513	502	490	478	466	454	442	429	417
13	404	391	379	366	353	339	326	312	299	285
14	271	257	243	229	215	200	186	171	156	141
15	126	111	096	081	065	050	034	018	002	*986
16	0.998970	953	937	920	904	887	870	853	836	819
17	801	784	766	749	731	713	695	677	659	640
18	622	603	585	566	547	528	509	490	471	451
19	432	412	392	372	352	332	312	292	271	251
20	230	210	189	168	147	126	105	083	062	040
21	019	*997	*975	*953	*931	*909	*887	*864	*842	*819
22	0.997797	774	751	728	705	682	659	635	612	588
23	565	541	517	493	469	445	421	396	372	347
24	323	298	273	248	223	198	173	147	122	096
25	071	045	019	*994	*968	*941	*915	*889	*863	*836
26	0.996810	783	756	730	703	676	648	621	594	567
27	539	512	484	456	428	400	372	344	316	288
28	259	231	202	174	145	116	087	058	029	000
29	0.995971	941	912	882	853	823	793	763	733	703
30	673	643	613	582	552	521	491	460	429	398
31	367	336	305	273	242	211	179	148	116	084
32	052	020	*988	*956	*924	*892	*859	*827	*794	*762
33	0.994729	696	663	630	597	564	531	498	464	431
34	398	364	330	296	263	229	195	161	126	092
35	058	023	*989	*954	*920	*885	*850	*815	*780	*745

LXVI. — DENSITY OF WATER AT 30° TO 102°

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF WATER FREE FROM  
AIR AT TEMPERATURES OF 30° TO 102° CENTIGRADE BY THE  
HYDROGEN THERMOMETER — ACCORDING TO M. THIESEN  
WISS. ABH. D. PHYS. — TECHN. REICHSANST. 4, 1: 1904

De- grees.	0	1	2	3	4	5	6	7	8	9
30	0.99567	537	505	473	440	406	371	336	299	262
40	224	186	147	107	066	025	*982	*940	*896	*852
50	0.98807	762	715	669	621	573	525	475	425	375
60	324	272	220	167	113	059	005	*950	*894	*838
70	0.97781	723	666	607	548	489	429	368	307	245
80	183	121	057	*994	*930	*865	*800	*734	*668	*601
90	0.96534	467	399	330	261	192	122	051	*981	*909
100	0.95838	765	693							

LXVII. — DENSITY OF WATER AT 100° TO 320°

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF WATER AT TEMPER-  
ATURES OF 100° TO 320° CENTIGRADE  
ACCORDING TO W. RAMSAY, S. YOUNG, J. J. WATERSTON, AND G. A. HIRN

°C.	Density.	°C.	Density.	°C.	Density.	°C.	Density.
100	0.9585	160	0.9075	220	0.837	280	0.75
110	0.9510	170	0.8973	230	0.823	290	0.72
120	0.9434	180	0.8866	240	0.809	300	0.70
130	0.9352	190	0.8750	250	0.794	310	0.68
140	0.9264	200	0.8628	260	0.779	320	0.66
150	0.9173	210	0.850	270	0.765		

To reduce the densities of water free from air to the density of water con-  
taining air add .000003 for temperatures of 0 to 14, .000002 for temperatures  
of 15 to 19. For higher temperatures the correction is negligible.

# LXVIII.— VOLUME IN CUBIC CENTIMETERS OF ONE GRAM OF WATER AT 0° TO 36° CENTIGRADE

BY THE HYDROGEN THERMOMETER — ACCORDING TO THIESEN,  
SCHEEL, AND DIESSELHORST  
WISS. ABH. D. PHYS. — TECHN. REICHSANST. 3, 69: 1900

Degrees.	Tenths of Degrees									
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	1.000132	126	119	113	107	101	095	089	084	079
1	073	069	064	059	055	051	047	043	039	035
2	032	029	026	023	020	018	016	013	011	009
3	008	006	005	004	003	002	001	001	000	000
4	000	000	000	001	001	002	003	004	005	007
5	008	010	012	014	016	018	021	023	026	029
6	032	035	039	042	046	050	054	058	062	066
7	071	075	080	085	090	096	101	107	112	118
8	124	130	137	143	149	156	163	170	177	184
9	192	199	207	215	223	231	239	247	256	264
10	273	282	291	300	390	319	328	338	348	358
11	368	378	388	399	409	420	431	442	453	464
12	476	487	499	511	522	534	547	559	571	584
13	596	609	622	635	648	661	675	688	702	715
14	729	743	757	772	786	800	815	830	844	859
15	874	890	905	920	936	951	967	983	999	*015
16	1.001031	048	064	081	098	114	131	148	165	183
17	200	218	235	253	271	289	307	325	343	361
18	380	399	417	436	455	474	493	513	532	551
19	571	591	610	630	650	671	691	711	732	752
20	773	794	815	836	857	878	899	921	942	964
21	985	*007	*029	*051	*073	*096	*118	*140	*163	*186
22	1.002208	231	254	277	300	324	347	370	394	418
23	441	465	489	513	538	562	586	611	635	660
24	685	710	735	760	785	810	835	861	886	912
25	938	964	990	*016	*042	*068	*094	*121	*147	*174
26	1.003201	227	254	281	308	336	363	390	418	445
27	473	501	529	556	585	613	641	669	698	726
28	755	783	812	841	870	899	928	957	987	*016
29	1.004046	075	105	135	165	194	225	255	285	315
30	346	376	407	437	468	499	530	561	592	623
31	655	686	717	749	781	812	844	876	908	940
32	972	*005	*037	*070	*102	*135	*167	*200	*233	*266
33	1.005299	332	365	399	432	465	499	533	566	600
34	634	668	702	736	771	805	839	874	908	943
35	978	*013	*047	*082	*118	*153	*188	*223	*259	*294

# LXIX. — VOLUME IN CUBIC CENTIMETERS OF ONE GRAM OF WATER AT 30° TO 102° CENTIGRADE

BY THE HYDROGEN THERMOMETER — ACCORDING TO M. THIESEN  
WISS. ABH. D. PHYS. — TECHN. REICHSANST. 4, 1: 1904

De- grees.	0	1	2	3	4	5	6	7	8	9
30	1.00435	466	497	530	563	598	633	669	706	743
40	782	821	861	901	943	985	*028	*072	*116	*162
50	1.01207	254	301	349	398	448	498	548	600	652
60	705	758	813	867	923	979	*036	*093	*151	*210
70	1.02270	330	390	452	514	576	639	703	768	833
80	899	965	*032	*099	*168	*237	*306	*376	*447	*518
90	1.03590	663	736	810	884	959	*035	*111	*188	*265
100	1.04343	422	501							

To reduce the volumes of water free from air to the volume of water containing air add .000003 for temperatures of 0 to 14, .000002 for temperatures of 15 to 19. For higher temperatures the correction is negligible.

# LXX. — VOLUME IN CUBIC CENTIMETERS OF ONE GRAM OF WATER AT 100° TO 320° CENTIGRADE

ACCORDING TO W. RAMSAY, S. YOUNG, J. J. WATERSTON, AND G. A. HIRN

°C.	Cubic Cent.	°C.	Cubic Cent.	°C.	Cubic Cent.	°C.	Cubic Cent.
100	1.0433	160	1.1019	220	1.195	280	1.34
110	1.0515	170	1.1145	230	1.215	290	1.38
120	1.0601	180	1.1279	240	1.236	300	1.42
130	1.0693	190	1.1429	250	1.259	310	1.46
140	1.0794	200	1.1590	260	1.283	320	1.51
150	1.0902	210	1.177	270	1.308		

# LXXI.—TENSION OF WATER VAPOR OVER ICE IN MILLIMETERS OF MERCURY

ACCORDING TO JUHLIN AND MARVIN

°C.	mm.	°C.	mm.	°C.	mm.	°C.	mm.
—50	0.034	—37	0.141	—24	0.534	—11	1.806
—49	0.038	—36	0.156	—23	0.589	—10	1.974
—48	0.043	—35	0.173	—22	0.648	— 9	2.154
—47	0.048	—34	0.193	—21	0.714	— 8	2.347
—46	0.054	—33	0.215	—20	0.787	— 7	2.557
—45	0.061	—32	0.238	—19	0.868	— 6	2.785
—44	0.068	—31	0.264	—18	0.955	— 5	3.032
—43	0.076	—30	0.292	—17	1.048	— 4	3.299
—42	0.085	—29	0.324	—16	1.148	— 3	3.586
—41	0.095	—28	0.358	—15	1.257	— 2	3.894
—40	0.105	—27	0.397	—14	1.375	— 1	4.223
—39	0.115	—26	0.438	—13	1.506	— 0	4.579
—38	0.127	—25	0.484	—12	1.650		

# LXXII.—TENSION OF WATER VAPOR OVER WATER IN MILLIMETERS OF MERCURY

ACCORDING TO REGNAULT, BROCH, AND JUHLIN

°C.	mm.	°C.	mm.	°C.	mm.	°C.	mm.
—20	0.960	—14	1.573	— 9	2.335	— 4	3.413
—19	1.044	—13	1.705	— 8	2.521	— 3	3.677
—18	1.135	—12	1.846	— 7	2.722	— 2	3.958
—17	1.233	—11	1.997	— 6	2.937	— 1	4.258
—16	1.338	—10	2.159	— 5	3.167	— 0	4.579
—15	1.451						

# LXXIII. — VAPOR TENSION OF WATER IN MILLI- METERS OF MERCURY — 2° TO +36° C.

ACCORDING TO REGNAULT, BROCH, AND WEIBE

°C.	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
-2	3.958	3.929	3.900	3.872	3.844	3.815	3.787	3.760	3.732	3.705
-1	4.258	4.227	4.197	4.166	4.136	4.106	4.076	4.046	4.016	3.987
-0	4.579	4.546	4.513	4.481	4.448	4.416	4.384	4.352	4.321	4.289
0	4.579	4.612	4.646	4.679	4.713	4.747	4.782	4.816	4.851	4.886
1	4.921	4.957	4.992	5.028	5.064	5.101	5.137	5.174	5.211	5.248
2	5.286	5.324	5.362	5.400	5.438	5.477	5.516	5.555	5.595	5.635
3	5.675	5.715	5.755	5.796	5.837	5.878	5.920	5.961	6.003	6.046
4	6.088	6.131	6.174	6.217	6.261	6.305	6.349	6.393	6.438	6.483
5	6.528	6.574	6.620	6.666	6.712	6.759	6.806	6.853	6.901	6.949
6	6.997	7.045	7.094	7.143	7.192	7.242	7.292	7.342	7.392	7.443
7	7.494	7.546	7.598	7.650	7.702	7.755	7.808	7.861	7.914	7.968
8	8.023	8.077	8.132	8.187	8.243	8.299	8.355	8.412	8.469	8.526
9	8.584	8.642	8.700	8.759	8.818	8.877	8.937	8.997	9.057	9.118
10	9.179	9.240	9.302	9.364	9.427	9.490	9.553	9.616	9.680	9.745
11	9.810	9.875	9.940	10.006	10.072	10.139	10.206	10.274	10.342	10.410
12	10.479	10.548	10.617	10.687	10.757	10.828	10.899	10.970	11.042	11.114
13	11.187	11.260	11.333	11.407	11.481	11.556	11.631	11.706	11.782	11.859
14	11.936	12.013	12.091	12.169	12.247	12.326	12.406	12.486	12.566	12.647
15	12.728	12.810	12.892	12.974	13.057	13.141	13.225	13.309	13.394	13.480
16	13.565	13.651	13.738	13.825	13.913	14.001	14.090	14.179	14.269	14.359
17	14.450	14.541	14.632	14.724	14.817	14.910	15.003	15.097	15.192	15.287
18	15.383	15.479	15.575	15.672	15.770	15.868	15.967	16.066	16.166	16.266
19	16.367	16.469	16.571	16.673	16.776	16.880	16.984	17.088	17.193	17.299
20	17.406	17.513	17.620	17.728	17.837	17.947	18.057	18.167	18.278	18.390
21	18.503	18.616	18.729	18.844	18.959	19.074	19.190	19.307	19.424	19.542
22	19.661	19.780	19.900	20.021	20.142	20.264	20.386	20.510	20.634	20.758
23	20.883	21.010	21.137	21.264	21.393	21.522	21.652	21.782	21.913	22.045
24	22.178	22.311	22.446	22.581	22.716	22.853	22.990	23.128	23.266	23.406
25	23.546	23.686	23.828	23.970	24.113	24.257	24.401	24.547	24.693	24.839
26	24.987	25.135	25.284	25.434	25.584	25.736	25.888	26.041	26.195	26.349
27	26.505	26.661	26.818	26.976	27.134	27.294	27.454	27.615	27.777	27.939
28	28.103	28.267	28.432	28.599	28.766	28.933	29.102	29.271	29.442	29.613
29	29.785	29.958	30.132	30.307	30.482	30.659	30.836	31.015	31.194	31.374
30	31.555	31.737	31.919	32.103	32.288	32.473	32.660	32.847	33.036	33.225
31	33.416	33.607	33.799	33.992	34.187	34.382	34.578	34.775	34.973	35.172
32	35.372	35.573	35.775	35.978	36.182	36.387	36.593	36.800	37.008	37.217
33	37.427	37.638	37.851	38.064	38.278	38.493	38.710	38.927	39.146	39.365
34	39.586	39.807	40.030	40.254	40.479	40.705	40.933	41.161	41.390	41.621
35	41.583	42.085	42.319	42.554	42.791	43.028	43.266	43.506	43.747	43.989



# LXXIV.— VAPOR TENSION OF WATER IN MILLI- METERS OF MERCURY 30° TO 230°

ACCORDING TO REGNAULT, BROCH, AND WIEBE

Degrees.	0	1	2	3	4	5	6	7	8	9
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
30	31.56	33.42	35.37	37.43	39.59	41.85	44.23	46.73	49.35	52.09
40	54.97	57.98	61.13	64.43	67.89	71.50	75.28	79.23	83.36	87.67
50	92.17	96.87	101.77	106.88	112.21	117.77	123.56	129.59	135.87	142.41
60	149.21	156.29	163.65	171.30	179.25	187.51	196.09	204.99	214.24	223.84
70	233.79	244.11	254.84	265.91	277.41	289.32	301.65	314.42	327.64	341.32
80	355.47	370.11	385.25	400.90	417.08	433.79	451.07	468.91	487.33	506.36
90	526.00	546.27	567.19	588.77	611.04	634.01	657.69	682.11	707.29	733.24
100	760.00	787.57	816.0	845.3	875.4	906.4	938.3	971.1	1004.9	1039.6
110	1075.4	1112.1	1149.8	1188.6	1228.4	1269.4	1311.5	1354.7	1399.0	1444.5
120	1491	1539	1588	1639	1691	1744	1798	1854	1911	1970
130	2030	2092	2155	2220	2286	2354	2423	2494	2567	2641
140	2718	2795	2875	2957	3040	3125	3213	3302	3393	3486
150	3581	3678	3778	3879	3983	4088	4196	4307	4419	4534
160	4651	4771	4893	5018	5145	5274	5406	5541	5678	5819
170	5961	6107	6255	6406	6560	6717	6877	7040	7205	7374
180	7546	7721	7899	8080	8265	8453	8644	8838	9036	9237
190	9442	9650	9862	10078	10296	10519	10745	10975	11209	11447
200	11688	11934	12183	12436	12694	12955	13220	13490	13764	14042
210	14324	14611	14901	15197	15496	15800	16109	16422	16740	17062
220	17389	17721	18058	18399	18745	19096	19452	19813	20179	20549
230	20925									

# LXXV.—VAPOR PRESSURE OF WATER

ACCORDING TO REGNAULT

°C.	°F.	Inches of Mercury.	Pounds per sq. inch.	Grams per sq. Centi- meter.	°C.	°F.	Inches of Mercury.	Pounds per sq. inch.	Grams per sq. Centi- meter.
0	32.0	0.181	0.0890	6.254	38	100.4	1.941	0.954	67.026
1	33.8	0.194	0.0955	6.716	39	102.2	2.049	1.007	70.752
2	35.6	0.209	0.1025	7.206	40	104.0	2.162	1.061	74.653
3	37.4	0.224	0.1100	7.736	41	105.8	2.280	1.121	78.678
4	39.2	0.240	0.1180	8.291	42	107.6	2.404	1.216	82.947
5	41.0	0.257	0.1263	8.878	43	109.4	2.533	1.244	87.488
6	42.8	0.276	0.1354	9.517	44	111.2	2.669	1.312	92.165
7	44.6	0.295	0.1452	10.183	45	113.0	2.811	1.381	97.059
8	46.4	0.316	0.1551	10.904	46	114.8	2.959	1.454	102.184
9	48.2	0.338	0.1657	11.651	47	116.6	3.114	1.530	107.528
10	50.0	0.361	0.1773	12.467	48	118.4	3.276	1.609	113.115
11	51.8	0.386	0.1893	13.310	49	120.2	3.444	1.692	118.962
12	53.6	0.412	0.2023	14.207	50	122.0	3.62	1.78	125.05
13	55.4	0.439	0.2158	15.173	51	123.8	3.81	1.87	131.42
14	57.2	0.469	0.2303	16.192	52	125.6	4.00	1.96	138.04
15	59.0	0.500	0.2456	17.266	53	127.4	4.20	2.06	144.98
16	60.8	0.533	0.2618	18.408	54	129.2	4.41	2.17	152.20
17	62.6	0.568	0.2789	19.605	55	131.0	4.63	2.27	159.72
18	64.4	0.605	0.2970	20.883	56	132.8	4.85	2.39	167.55
19	66.2	0.644	0.3162	22.229	57	134.6	5.09	2.50	175.72
20	68.0	0.685	0.3363	23.643	58	136.4	5.33	2.62	184.23
21	69.8	0.728	0.3577	25.152	59	138.2	5.59	2.75	193.08
22	71.6	0.774	0.3802	26.729	60	140.0	5.86	2.88	202.29
23	73.4	0.822	0.4040	28.401	61	141.8	6.14	3.01	211.87
24	75.2	0.873	0.4289	30.155	62	143.6	6.42	3.16	221.84
25	77.0	0.927	0.4554	32.018	63	145.4	6.72	3.30	232.20
26	78.8	0.984	0.4833	33.975	64	147.2	7.04	3.46	242.97
27	80.6	1.044	0.5126	36.042	65	149.0	7.36	3.62	254.17
28	82.4	1.106	0.5434	38.204	66	150.8	7.70	3.78	265.79
29	84.2	1.172	0.5759	40.488	67	152.6	8.05	3.95	277.87
30	86.0	1.242	0.6101	42.894	68	154.4	8.41	4.13	290.40
31	87.8	1.315	0.6461	45.423	69	156.2	8.79	4.32	303.41
32	89.6	1.392	0.6838	48.074	70	158.0	9.18	4.51	316.90
33	91.4	1.473	0.7234	50.861	71	159.8	9.58	4.71	330.90
34	93.2	1.558	0.7655	53.798	72	161.6	10.00	4.91	345.42
35	95.0	1.647	0.810	56.870	73	163.4	10.44	5.12	360.49
36	96.8	1.740	0.855	60.093	74	165.2	10.89	5.35	376.08
37	98.6	1.838	0.903	63.478	75	167.0	11.36	5.58	392.26

°C.	°F.	Inches of Mercury.	Pounds per sq. inch.	Grams per sq. Centi- meter.	°C.	°F.	Atmos- pheres.	Pounds per sq. inch.	Grams per sq. Centi- meter.
76	168.8	11.84	5.82	409.01	117	242.6	1.782	26.20	1841.74
77	170.6	12.35	6.06	426.36	118	244.4	1.841	27.06	1902.05
78	172.4	12.87	6.32	444.32	119	246.2	1.901	27.94	1963.95
79	174.2	13.40	6.58	462.92	120	248.0	1.962	28.85	2027.48
80	176.0	13.96	6.85	482.15	121	249.8	2.025	29.78	2092.70
81	177.8	14.54	7.14	502.07	122	251.6	2.091	30.73	2159.62
82	179.6	15.14	7.44	522.67	123	253.4	2.157	31.70	2228.26
83	181.4	15.75	7.74	543.96	124	255.2	2.225	32.70	2298.69
84	183.2	16.39	8.05	565.99	125	257.0	2.295	33.72	2370.91
85	185.0	17.05	8.37	588.74	126	258.8	2.366	34.78	2444.96
86	186.8	17.73	8.71	612.26	127	260.6	2.430	35.86	2520.89
87	188.6	18.43	9.05	636.57	128	262.4	2.515	36.97	2598.76
88	190.4	19.16	9.41	661.68	129	264.2	2.592	38.11	2678.54
89	192.2	19.91	9.78	687.61	130	266.0	2.671	39.26	2760.29
90	194.0	20.69	10.16	714.38	131	267.8	2.753	40.47	2844.12
91	195.8	21.49	10.56	740.31	132	269.6	2.836	41.68	2929.89
92	197.6	22.31	10.95	770.54	133	271.4	2.921	42.93	3017.80
93	199.4	23.17	11.38	799.98	134	273.2	3.008	44.21	3107.85
94	201.2	24.04	11.81	830.34	135	275.0	3.097	45.52	3200.04
95	203.0	24.95	12.26	861.66	136	276.8	3.188	46.87	3294.43
96	204.8	25.89	12.71	893.97	137	278.6	3.282	48.24	3391.06
97	206.6	26.85	13.19	927.26	138	280.4	3.378	49.65	3489.99
98	208.4	27.85	13.68	961.59	139	282.2	3.476	51.06	3591.29
99	210.2	28.87	14.18	996.98	140	284.0	3.576	52.55	3694.78
100	212.0	29.92	14.70	1033.26	141	285.8	3.678	54.07	3800.75
		1.000*			142	287.6	3.783	55.60	3909.14
101	213.8	1.036*	15.23	1070.78	143	289.4	3.890	57.16	4020.03
102	215.6	1.074*	15.79	1109.41	144	291.2	4.000	58.79	4133.42
103	217.4	1.112*	16.35	1149.21	145	293.0	4.113	60.44	4249.37
104	219.2	1.152*	16.94	1190.17	146	294.8	4.227	62.13	4367.91
105	221.0	1.193*	17.53	1232.32	147	296.6	4.344	63.86	4489.09
106	222.8	1.235*	18.15	1275.69	148	298.4	4.464	65.62	4612.96
107	224.6	1.278*	18.78	1320.32	149	300.2	4.587	67.41	4739.55
108	226.4	1.322*	19.44	1366.24	150	302.0	4.712	69.26	4868.9
109	228.2	1.368*	20.11	1413.47	151	303.8	4.840	71.14	5001.1
110	230.0	1.415*	20.80	1462.03	152	305.6	4.971	73.06	5136.1
111	231.8	1.463*	21.51	1511.97	153	307.4	5.104	75.02	5275.0
112	233.6	1.513*	22.24	1563.26	154	309.2	5.240	77.03	5414.8
113	235.4	1.564*	22.99	1615.99	155	311.0	5.380	79.07	5558.6
114	237.2	1.616*	23.76	1670.18	156	312.8	5.522	81.22	5705.5
115	239.0	1.670*	24.55	1725.84	157	314.6	5.667	83.29	5855.5
116	240.8	1.726*	25.73	1783.02	158	316.4	5.815	85.47	6008.5

\* Atmospheres.

°C.	°F.	Atmospheres.	Pounds per sq. inch.	Grams per sq. Centimeter.	°C.	°F.	Atmospheres.	Pounds per sq. inch.	Grams per sq. Centimeter.
159	318.2	5.966	87.69	6164.7	195	383.0	13.842	203.43	14302.7
160	320.0	6.120	89.96	6324.2	196	384.8	14.139	207.81	14609.8
161	321.8	6.278	92.27	6486.8	197	386.6	14.441	212.25	14921.2
162	323.6	6.439	94.63	6652.8	198	388.4	14.749	216.77	15240.4
163	325.4	6.603	97.04	6822.2	199	390.2	15.062	221.37	15563.5
164	327.2	6.770	99.50	6994.9	200	392.0	15.380	226.04	15891.9
165	329.0	6.940	102.01	7171.1	201	393.8	15.703	230.79	16225.5
166	330.8	7.114	104.56	7350.7	202	395.6	16.031	235.61	16564.7
167	332.6	7.291	107.18	7533.9	203	397.4	16.364	240.54	16908.8
168	334.4	7.472	109.84	7720.7	204	399.2	16.703	245.49	17257.3
169	336.2	7.656	112.53	7911.1	205	401.0	17.047	250.53	17614.0
170	338.0	7.844	115.29	8105.2	206	402.8	17.396	255.67	17974.9
171	339.8	8.036	118.11	8303.1	207	404.6	17.751	260.88	18341.5
172	341.6	8.231	120.98	8504.7	208	406.4	18.111	266.18	18713.7
173	343.4	8.430	123.90	8710.2	209	408.2	18.477	271.55	19091.6
174	345.2	8.632	126.87	8919.5	210	410.0	18.848	277.01	19475.4
175	347.0	8.839	129.91	9132.8	211	411.8	19.226	282.58	19864.9
176	348.8	9.049	133.00	9350.0	212	413.6	19.608	288.21	20260.5
177	350.6	9.263	136.15	9571.3	213	415.4	19.997	293.92	20661.9
178	352.4	9.481	139.35	9796.6	214	417.2	20.391	299.72	21069.3
179	354.2	9.703	142.62	10026.1	215	419.0	20.791	305.57	21482.8
180	356.0	9.929	145.93	10259.7	216	420.8	21.197	311.57	21902.4
181	357.8	10.150	149.32	10497.7	217	422.6	21.690	317.62	22328.3
182	359.6	10.394	152.77	10739.9	218	424.4	22.027	323.78	22760.3
183	361.4	10.633	156.32	10986.4	219	426.2	22.452	330.01	23198.6
184	363.2	10.876	159.84	11237.3	220	428.0	22.882	336.30	23643.2
185	365.0	11.123	163.47	11490.0	221	429.8	23.319	342.70	24094.3
186	366.8	11.374	167.17	11752.5	222	431.6	23.761	349.21	24551.8
187	368.6	11.630	170.94	12016.9	223	433.4	24.210	355.81	25015.8
188	370.4	11.885	174.76	12285.9	224	435.2	24.666	362.50	25486.4
189	372.2	12.155	178.65	12559.6	225	437.0	25.128	369.29	25963.5
190	374.0	12.425	182.61	12837.9	226	438.8	25.596	376.17	26447.4
191	375.8	12.699	186.63	13121.0	227	440.6	26.071	383.15	26938.0
192	377.6	12.977	190.72	13408.9	228	442.4	26.552	390.22	27435.4
193	379.4	13.261	194.88	13701.7	229	444.2	27.040	397.40	27939.6
194	381.2	13.549	199.13	13999.4					

# LXXVI. — BOILING POINT OF WATER AT BAROMETRIC PRESSURES OF 680 MM. TO 800 MM.

ACCORDING TO REGNAULT, BROCH, AND WIEBE

Baro- metric Pressure mm.	Boiling Point °C.	Baro- metric Pressure mm.	Boiling Point °C.	Baro- metric Pressure mm.	Boiling Point °C.	Baro- metric Pressure mm.	Boiling Point °C.
680	96.915	711	98.145	741	99.293	771	100.403
681	96.955	712	98.184	742	99.331	772	100.439
682	96.996	713	98.223	743	99.368	773	100.475
683	97.036	714	98.261	744	99.406	774	100.511
684	97.076	715	98.300	745	99.443	775	100.548
685	97.116	716	98.339	746	99.481	776	100.584
686	97.156	717	98.378	747	99.518	777	100.620
687	97.197	718	98.416	748	99.555	778	100.656
688	97.237	719	98.455	749	99.592	779	100.692
689	97.277	720	98.493	750	99.630	780	100.728
690	97.317	721	98.532	751	99.667	781	100.764
691	97.357	722	98.570	752	99.704	782	100.800
692	97.396	723	98.609	753	99.741	783	100.836
693	97.436	724	98.647	754	99.778	784	100.872
694	97.476	725	98.686	755	99.815	785	100.908
695	97.516	726	98.724	756	99.852	786	100.944
696	97.555	727	98.762	757	99.889	787	100.979
697	97.595	728	98.800	758	99.926	788	101.015
698	97.635	729	98.838	759	99.963	789	101.051
699	97.674	730	98.877	760	100.000	790	101.087
700	97.714	731	98.915	761	100.037	791	101.122
701	97.753	732	98.953	762	100.074	792	101.158
702	97.792	733	98.991	763	100.110	793	101.193
703	97.832	734	99.029	764	100.147	794	101.229
704	97.871	735	99.067	765	100.184	795	101.264
705	97.910	736	99.104	766	100.220	796	101.300
706	97.949	737	99.142	767	100.257	797	101.335
707	97.989	738	99.180	768	100.293	798	101.370
708	98.028	739	99.218	769	100.330	799	101.406
709	98.067	740	99.255	770	100.366	800	101.441
710	98.106						

## LXXVII. — VAPOR TENSION OF MERCURY

RAMSAY AND YOUNG, J. CHEM. SOC. **49**, 37 ; 1886

°C.	mm.	°C.	mm.	°C.	mm.	°C.	mm.
40	0.0008	160	4.013	280	157.378	400	1495.60
50	0.015	170	5.904	290	198.982	410	1733.79
60	0.029	180	8.535	300	246.704	420	2000.21
70	0.052	190	12.137	310	304.794	430	2298.80
80	0.092	200	17.015	320	373.528	440	2628.79
90	0.160	210	23.482	330	454.277	450	2996.06
100	0.270	220	31.957	340	546.715	460	3399.50
110	0.445	230	42.919	350	658.515	470	3843.68
120	0.719	240	56.919	360	785.107	480	4327.14
130	1.137	250	74.592	370	930.335	490	4856.74
140	1.763	260	96.661	380	1096.22	500	5434.99
150	2.684	270	123.905	390	1283.71	510	6059.16
						520	6736.60

## LXXVIII. — VAPOR TENSION OF MERCURY

CAILLETET, CORLARDEAU, AND RIVIÈRE, C. R. **130**, 1585; 1900

°C.	Atm.	°C.	Atm.	°C.	Atm.	°C.	Atm.
400	2.1	550	13.8	700	50	850	137.5
450	4.25	600	22.3	750	72	880	162
500	8	650	34	800	102		

# EQUIVALENTS OF METRIC AND CUSTOM- ARY (U. S.) WEIGHTS AND MEASURES

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## STANDARDS OF WEIGHTS AND MEASURES \*

By the concurrent action of the principal governments of the world an International Bureau of Weights and Measures has been established near Paris. Under the direction of the International Committee, two ingots were cast of pure platinum-iridium in the proportion of nine parts of the former to one of the latter metal. From one of these a certain number of kilograms were prepared, from the other a definite number of meter bars. These standards of weight and length were intercompared, without preference, and certain ones were selected as International prototype standards. The others were distributed by lot, in September, 1887, to the different governments, and are called National Prototype Standards. Those apportioned to the United States were received in 1890, and are kept by the Bureau of Standards in Washington, D. C.

The International Standard Meter is defined by the distance between two lines at 0° Centigrade, on a platinum-iridium bar deposited at the International Bureau of Weights and Measures near Paris, France.

The International Standard Kilogram is a mass of platinum-iridium deposited at the same place, and its weight in vacuo is the same as that of the Kilogramme des Archives.

The International Standard Meter and Kilogram are the fundamental standards for the United States.

The liter is equal to a cubic decimeter, and it is measured by the quantity of distilled water which, at its maximum density, will counterpoise the standard kilogram in a vacuum, the volume of such a quantity of water being, as nearly as has been ascertained, equal to a cubic decimeter.

The grain Troy is the same as the grain Avoirdupois, and the pound Avoirdupois in use in the United States is equal to the British pound Avoirdupois.

The nautical mile adopted by the U. S. Coast and Geodetic Survey many years ago is defined as the length of a minute of arc of a great circle of a sphere whose surface equals that of the earth (Clarke's Spheroid of 1866).

\* Quoted from Smithsonian Physical Tables, 3d Ed., 1904.

## LXXIX. — FUNDAMENTAL EQUIVALENTS \*

1 meter	= 39.37 inches (law of July 28, 1866).
1 yard	= $\frac{3600}{3937}$ meter.
1 pound avoirdupois	= 453.5924277 grams.
1 pound troy	= $\frac{5760}{3937}$ pound avoirdupois.
1 gallon	= 231 cubic inches.
1 bushel	= 2,150.42 cubic inches.

All lengths, areas, and cubic measures are derived from the international meter, the legal equivalent being 1 meter = 39.37 inches (law of July 28, 1866). In 1893 the United States Office of Standard Weights and Measures was authorized to derive the yard from the meter, using, for the purpose, the relation legalized in 1866, 1 yard equals  $\frac{3600}{3937}$  meter, and the customary weights are likewise referred to the kilogram (executive order, approved April 5, 1893). This action fixes the values, inasmuch as the reference standards are as perfect and unalterable as it is possible for human skill to make them.

All capacities are based on the practical equivalent 1 cubic decimeter equals 1 liter. The decimeter is equal to 3.937 inches in accordance with the legal equivalent of the meter given above. The gallon referred to in the tables is the United States gallon of 231 cubic inches. The bushel is the United States bushel of 2,150.42 cubic inches. These units must not be confused with the British units of the same name which differ from those used in the United States. The British gallon is approximately 20 per cent larger and the British bushel 3 per cent larger than the corresponding units used in this country.

The customary weights derived from the international kilogram are based on the value 1 avoirdupois pound = 453.5924277 grams. This value is carried out farther than that given in the law, but is in accord with the latter as far as it is there given. The value of the troy pound is based upon the relation just mentioned and also the equivalent  $\frac{5760}{3937}$  avoirdupois pound equals 1 troy pound.

\* Quoted from Table of Equivalents, U. S. Bureau of Standards.



# LXXX.—COMPARISON OF METRIC AND CUSTOMARY UNITS FROM 1 TO 10\*

LENGTHS					
Inches.	Millimeters.	Inches.	Centimeters.	Feet.	Meters.
0.03937 =	1	0.3937 =	1	1	= 0.304801
0.07874 =	2	0.7874 =	2	2	= 0.609601
0.11811 =	3	1 =	2.54001	3	= 0.914402
0.15748 =	4	1.1811 =	3	3.28083 =	1
0.19685 =	5	1.5748 =	4	4	= 1.219202
0.23622 =	6	1.9685 =	5	5	= 1.524003
0.27559 =	7	2 =	5.08001	6	= 1.828804
0.31496 =	8	2.3622 =	6	6.56167 =	2
0.35433 =	9	2.7559 =	7	7	= 2.133604
1 =	25.4001	3 =	7.62002	8	= 2.438405
2 =	50.8001	3.1496 =	8	9	= 2.743205
3 =	76.2002	3.5433 =	9	9.84250 =	3
4 =	101.6002	4 =	10.16002	13.12333 =	4
5 =	127.0003	5 =	12.70003	16.40417 =	5
6 =	152.4003	6 =	15.24003	19.68500 =	6
7 =	177.8004	7 =	17.78004	22.96583 =	7
8 =	203.2004	8 =	20.32004	26.24667 =	8
9 =	228.6005	9 =	22.86005	29.52750 =	9

U. S. Yards.	Meters.	U. S. Miles.	Kilometers.
1 =	0.914402	0.62137 =	1
1.093611 =	1	1 =	1.60935
2 =	1.828804	1.24274 =	2
2.187222 =	2	1.86411 =	3
3 =	2.743205	2 =	3.21869
3.280833 =	3	2.48548 =	4
4 =	3.657607	3 =	4.82804
4.374444 =	4	3.10685 =	5
5 =	4.572009	3.72822 =	6
5.468056 =	5	4 =	6.43739
6 =	5.486411	4.34959 =	7
6.561667 =	6	4.97096 =	8
7 =	6.400813	5 =	8.04674
7.655278 =	7	5.59233 =	9
8 =	7.315215	6 =	9.65608
8.748889 =	8	7 =	11.26543
9 =	8.229616	8 =	12.87478
9.842500 =	9	9 =	14.48412

\* Table of Equivalents, U. S. Bureau of Standards.

AREAS

Square Inches.	Square Millimeters.	Square Inches.	Square Centimeters.	Square Feet.	Square Meters.
0.00155 =	1	0.1550 =	1	1 =	0.09290
0.00310 =	2	0.3100 =	2	2 =	0.18581
0.00465 =	3	0.4650 =	3	3 =	0.27871
0.00620 =	4	0.6200 =	4	4 =	0.37161
0.00775 =	5	0.7750 =	5	5 =	0.46452
0.00930 =	6	0.9300 =	6	6 =	0.55742
0.01085 =	7	1 =	6.452	7 =	0.65032
0.01240 =	8	1.0850 =	7	8 =	0.74323
0.01395 =	9	1.2400 =	8	9 =	0.83613
1 =	645.16	1.3950 =	9	10.764 =	1
2 =	1,290.33	2 =	12.903	21.528 =	2
3 =	1,935.49	3 =	19.355	32.292 =	3
4 =	2,580.65	4 =	25.807	43.055 =	4
5 =	3,225.81	5 =	32.258	53.819 =	5
6 =	3,870.98	6 =	38.710	64.583 =	6
7 =	4,516.14	7 =	45.161	75.347 =	7
8 =	5,161.30	8 =	51.613	86.111 =	8
9 =	5,806.46	9 =	58.065	96.875 =	9
Square Yards.	Square Meters.	Square Miles.	Square Kilometers.	Acres.	Hectares.
1 =	0.8361	0.3861 =	1	1 =	0.4047
1.1960 =	1	0.7722 =	2	2 =	0.8094
2 =	1.6723	1 =	2.5900	2.471 =	1
2.3920 =	2	1.1583 =	3	3 =	1.2141
3 =	2.5084	1.5444 =	4	4 =	1.6187
3.5880 =	3	1.9305 =	5	4.942 =	2
4 =	3.3445	2 =	5.1800	5 =	2.0234
4.7839 =	4	2.3166 =	6	6 =	2.4281
5 =	4.1807	2.7027 =	7	7 =	2.8328
5.9799 =	5	3 =	7.7700	7.413 =	3
6 =	5.0168	3.0888 =	8	8 =	3.2375
7 =	5.8529	3.4749 =	9	9 =	3.6422
7.1759 =	6	4 =	10.3600	9.884 =	4
8 =	6.6890	5 =	12.9500	12.355 =	5
8.3719 =	7	6 =	15.5400	14.826 =	6
9 =	7.5252	7 =	18.1300	17.297 =	7
9.5679 =	8	8 =	20.7200	19.768 =	8
10.7639 =	9	9 =	23.3100	22.239 =	9

VOLUMES

Cubic Inches.	Cubic Millimeters.	Cubic Inches.	Cubic Centimeters.	Cubic Feet.	Cubic Meters.
0.000061 =	1	0.0610 =	1	1 =	0.02832
0.000122 =	2	0.1220 =	2	2 =	0.05663
0.000183 =	3	0.1831 =	3	3 =	0.08495
0.000244 =	4	0.2441 =	4	4 =	0.11327
0.000305 =	5	0.3051 =	5	5 =	0.14159
0.000366 =	6	0.3661 =	6	6 =	0.16990
0.000427 =	7	0.4272 =	7	7 =	0.19822
0.000488 =	8	0.4882 =	8	8 =	0.22654
0.000549 =	9	0.5492 =	9	9 =	0.25485
1 =	16,387.2	1 =	16.3872	35.314 =	1
2 =	32,774.3	2 =	32.7743	70.629 =	2
3 =	49,161.5	3 =	49.1615	105.943 =	3
4 =	65,548.6	4 =	65.5486	141.258 =	4
5 =	81,935.8	5 =	81.9358	176.572 =	5
6 =	98,323.0	6 =	98.3230	211.887 =	6
7 =	114,710.1	7 =	114.7101	247.201 =	7
8 =	131,097.3	8 =	131.0973	282.516 =	8
9 =	147,484.5	9 =	147.4845	317.830 =	9

Cubic Yards.	Cubic Meters.	Cubic Yards.	Cubic Meters.	Cubic Yards.	Cubic Meters.
1 =	0.7645	4 =	3.0582	7.8477 =	6
1.3079 =	1	5 =	3.8228	8 =	6.1165
2 =	1.5291	5.2318 =	4	9 =	6.8810
2.6159 =	2	6 =	4.5874	9.1556 =	7
3 =	2.2937	6.5397 =	5	10.4635 =	8
3.9238 =	3	7 =	5.3519	11.7715 =	9

## CAPACITIES

Milliliters. (cc.)	U.S. Liquid Ounces.	Milliliters. (cc.)	U.S. Apothe- caries' Drams.	U.S. Apothe- caries' Scruples.	Milliliters. (cc.)
1	= 0.03381	1	= 0.2705	0.8115	= 1
2	= 0.06763	2	= 0.5410	1	= 1.2322
3	= 0.10144	3	= 0.8115	1.6231	= 2
4	= 0.13526	3.6967	= 1	2	= 2.4645
5	= 0.16907	4	= 1.0820	2.4346	= 3
6	= 0.20288	5	= 1.3525	3	= 3.6967
7	= 0.23670	6	= 1.6231	3.2461	= 4
8	= 0.27051	7	= 1.8936	4	= 4.9290
9	= 0.30432	7.3934	= 2	4.0577	= 5
29.574	= 1	8	= 2.1641	4.8692	= 6
59.147	= 2	9	= 2.4346	5	= 6.1612
88.721	= 3	11.0901	= 3	5.6807	= 7
118.295	= 4	14.7869	= 4	6	= 7.3934
147.869	= 5	18.4836	= 5	6.4923	= 8
177.442	= 6	22.1803	= 6	7	= 8.6257
207.016	= 7	25.8770	= 7	7.3038	= 9
236.590	= 8	29.5737	= 8	8	= 9.8579
266.163	= 9	33.2704	= 9	9	= 11.0901
U.S. Liquid Quarts.	Liters.	U.S. Liquid Gallons.	Liters.	U.S. Dry Quarts.	Liters.
1	= 0.94636	0.26417	= 1	0.9081	= 1
1.05668	= 1	0.52834	= 2	1	= 1.1012
2	= 1.89272	0.79251	= 3	1.8162	= 2
2.11336	= 2	1	= 3.78543	2	= 2.2025
3	= 2.83908	1.05668	= 4	2.7242	= 3
3.17005	= 3	1.32085	= 5	3	= 3.3037
4	= 3.78543	1.58502	= 6	3.6323	= 4
4.22673	= 4	1.84919	= 7	4	= 4.4049
5	= 4.73179	2	= 7.57087	4.5404	= 5
5.28341	= 5	2.11336	= 8	5	= 5.5061
6	= 5.67815	2.37753	= 9	5.4485	= 6
6.34009	= 6	3	= 11.35630	6	= 6.6074
7	= 6.62451	4	= 15.14174	6.3565	= 7
7.39677	= 7	5	= 18.92717	7	= 7.7086
8	= 7.57088	6	= 22.71261	7.2646	= 8
8.45345	= 8	7	= 26.49804	8	= 8.8098
9	= 8.51723	8	= 30.28348	8.1727	= 9
9.51014	= 9	9	= 34.06891	9	= 9.9110

CAPACITIES (Continued).

U.S. Pecks.	Liters.	Dekaliters.	U.S. Pecks.	U.S. Bushels.	Hectoliters.
0.11351 =	1	0.8810 =	1	1 =	0.35239
0.22702 =	2	1 =	1.1351	2 =	0.70479
0.34053 =	3	1.7620 =	2	2.83774 =	1
0.45404 =	4	2 =	2.2702	3 =	1.05718
0.56755 =	5	2.6429 =	3	4 =	1.40957
0.68106 =	6	3 =	3.4053	5 =	1.76196
0.79457 =	7	3.5239 =	4	5.67548 =	2
0.90808 =	8	4 =	4.5404	6 =	2.11436
1 =	8.80982	4.4049 =	5	7 =	2.46675
1.02157 =	9	5 =	5.6755	8 =	2.81914
2 =	17.61964	5.2859 =	6	8.51323 =	3
3 =	26.42946	6 =	6.8106	9 =	3.17154
4 =	35.23928	6.1669 =	7	11.35097 =	4
5 =	44.04910	7 =	7.9457	14.18871 =	5
6 =	52.85892	7.0479 =	8	17.02645 =	6
7 =	61.66874	7.9288 =	9	19.86420 =	7
8 =	70.47856	8 =	9.0808	22.70194 =	8
9 =	79.28838	9 =	10.2159	25.53968 =	9

U.S. Bushels per Acre.	Hectoliters per Hectar.	U.S. Bushels per Acre.	Hectoliters per Hectar.	U.S. Bushels per Acre.	Hectoliters per Hectar.
1 =	0.87078	4 =	3.48311	7 =	6.09545
1.14840 =	1	4.59359 =	4	8 =	6.96622
2 =	1.74156	5 =	4.35389	8.03879 =	7
2.29680 =	2	5.74199 =	5	9 =	7.83700
3 =	2.61233	6 =	5.22467	9.18719 =	8
3.44519 =	3	6.89039 =	6	10.33558 =	9

## MASSES

Grains.	Grams.	Avoirdupois Ounces.	Grams.	Troy Ounces.	Grams.
1	= 0.06480	0.03527 =	1	0.03215 =	1
2	= 0.12960	0.07055 =	2	0.06430 =	2
3	= 0.19440	0.10582 =	3	0.09645 =	3
4	= 0.25920	0.14110 =	4	0.12860 =	4
5	= 0.32399	0.17637 =	5	0.16075 =	5
6	= 0.38879	0.21164 =	6	0.19290 =	6
7	= 0.45359	0.24692 =	7	0.22506 =	7
8	= 0.51839	0.28219 =	8	0.25721 =	8
9	= 0.58319	0.31747 =	9	0.28936 =	9
15.4324 =	1	1 =	28.3495	1 =	31.10348
30.8647 =	2	2 =	56.6991	2 =	62.20696
46.2971 =	3	3 =	85.0486	3 =	93.31044
61.7294 =	4	4 =	113.3981	4 =	124.41392
77.1618 =	5	5 =	141.7476	5 =	155.51740
92.5941 =	6	6 =	170.0972	6 =	186.62088
108.0265 =	7	7 =	198.4467	7 =	217.72437
123.4589 =	8	8 =	226.7962	8 =	248.82785
138.8912 =	9	9 =	255.1457	9 =	279.93133

Avoirdupois Pounds.	Kilograms.	Troy Pounds.	Kilograms.
1	= 0.45359	1	= 0.37324
2	= 0.90718	2	= 0.74648
2.20462 =	1	2.67923 =	1
3	= 1.36078	3	= 1.11973
4	= 1.81437	4	= 1.49279
4.40924 =	2	5	= 1.86621
5	= 2.26796	5.35846 =	2
6	= 2.72155	6	= 2.23945
6.61387 =	3	7	= 2.61269
7	= 3.17515	8	= 2.98593
8	= 3.62874	8.03769 =	3
8.81849 =	4	9	= 3.35918
9	= 4.08233	10.71691 =	4
11.02311 =	5	13.39614 =	5
13.22773 =	6	16.07537 =	6
15.43236 =	7	18.75460 =	7
17.63698 =	8	21.43383 =	8
19.84160 =	9	24.11306 =	9

# EQUIVALENTS OF METRIC AND BRITISH IMPERIAL WEIGHTS AND MEASURES\*

## STANDARDS AND FUNDAMENTAL EQUIVALENTS

The meter is the length, at the temperature of 0° C., of the platinum-iridium bar deposited with the Board of Trade.

The present legal equivalent of the meter is 39.37079 inches. If a brass meter is, however, compared, not at its legal temperature (0° C. or 32° F.), but at the temperature of 62° F., with a brass yard also at the temperature of 62° F., then the apparent equivalent of the meter would be nearly 39.382 inches.

The kilogram is the weight in vacuo at 0° C. of the platinum-iridium weight deposited with the Board of Trade.

The liter contains one kilogram weight of distilled water at its maximum density (4° C.), the barometer being at 760 millimeters.

## LXXXI. — METRIC TO IMPERIAL

### LINEAR MEASURE

millimeter (mm., .001 m.)	=	0.03937 inches
centimeter (.01 m.)	=	0.39371 inches
decimeter (.1 m.)	=	3.93708 inches
meter (m.)	=	39.37079 inches
	=	3.28089917 feet
	=	1.09363306 yards
dekameter (10 m.)	=	10.93633 yards
hectometer (100 m.)	=	109.36331 yards
kilometer (1,000 m.)	=	0.62138 mile
myriameter (10,000 m.)	=	6.21382 miles
micron	=	0.001 mm.

### SQUARE MEASURE

sq. centimeter	=	0.15501 sq. inch
sq. decimeter (100 sq. centm.)	=	15.50059 sq. inches
sq. meter or centiare (100 sq. dcm.)	=	10.76430 sq. feet
are (100 sq. m.)	=	1.19603 sq. yards
hectare (100 ares or 10,000 sq. m.)	=	119.60333 sq. yards
	=	2.47115 acres

### CUBIC MEASURE

cub. centimeter (c.c. or 1,000 cubic millimeters)	=	0.06103 cub. inch
cub. decimeter (c.d. or 1,000 c.c.)	=	61.02705 cub. inches
cub. meter or stere (1,000 c.d.)	=	35.31658074 cu. feet
	=	1.30802151 cu. yards

\* Quoted from sheets issued in 1890 by the Standard Office of the British Board of Trade.

## MEASURE OF CAPACITY

milliliter (ml., c.c. or .001 liter)	= 0.06103 cub. inch
centiliter (.01 liter)	= 0.61027 " "
	= 0.07043 gill
deciliter (.1 liter)	= 0.17608 pint
liter (1,000 c.c. or cub. decimeter)	= 1.76077 pints
dekaliter (10 liters)	= 2.20097 gallons
hectoliter (100 liters)	= 2.75121 bushels
kiloliter (1,000 liters)	= 3.43901 quarters
microliter	= 0.001 c.c.

## APOTHECARIES' MEASURE

cubic centimeter (1 gram weight of water)	= 0.03527 fluid ounce
	= 0.28219 fluid drachm
	= 15.43235 grains weight
cubic millimeter	= 0.01693 minim

## AVOIRDUPOIS WEIGHT

milligram (mgr.)	= 0.01543 grain
centigram (.01 gram)	= 0.5432 "
decigram (.1 gram)	= 1.54324 grains
gram	= 15.43235 "
dekagram (10 gram)	= 5.64383 drams
hectogram (100 gram)	= 3.52739 ounces
kilogram (1,000 gram)	= 2.20462125 pounds
	= 15432.34874 grains
myriagram (10 kilogram)	= 22.04621 pounds
quintal (100 kilogram)	= 1.96841 cwt.
millier or ton (1,000 kilogram)	= 0.98420591 ton

## TROY WEIGHT

gram	= 0.03215073 oz. Troy
	= 0.64301 pennyweight
	= 15.43235 grains

## APOTHECARIES' WEIGHT

gram	= 0.25721 drachm
	= 0.77162 scruple
	= 15.43235 grains



# LXXXII. — EQUIVALENTS OF BRITISH IMPERIAL AND METRIC WEIGHTS AND MEASURES

## STANDARDS AND FUNDAMENTAL EQUIVALENTS

The yard is the length at 62° F. marked on a bronze bar deposited with the Board of Trade.

The pound is the weight of a piece of platinum weighed in vacuo at the temperature of 0° C., which is also deposited with the Board of Trade.

The gallon contains 10 lb. weight of distilled water at the temperature of 62° F., the barometer being at 30 inches. The weight of a cubic inch of water is 252.286 grains.

## IMPERIAL TO METRIC

### LINEAR MEASURE

inch	= 25.39954113 millimeters
foot (12 inches)	= 0.30479449 meters
yard (3 feet)	= 0.91438348 “
pole (5½ yards)	= 5.02911 “
chain (22 yards or 100 links)	= 20.11644 “
furlong (220 yards)	= 201.16437 “
mile (1,760 yards)	= 1.60931493 kilometers

### SQUARE MEASURE

square inch	= 6.45137 sq. centimeters
square foot (144 sq. in.)	= 9.28997 sq. decimeters
sq. yard (9 sq. ft.)	= 0.83609715 sq. meters
perch (30¼ sq. yd.)	= 25.29194 “ “
rood (40 perches)	= 10.11678 ares
acre (4,840 sq. yds.)	= 0.40467 hectare
sq. mile (640 acres)	= 258.98945312 hectares

### CUBIC MEASURE

cubic inch	= 16.38617589 cub. centimeters
cubic foot (1,728 cub. in.)	= 0.02832 cub. meter
	= 28.31531 cub. decimeters
cubic yard (27 cub. ft.)	= 0.76451342 cub. meter

## MEASURE OF CAPACITY

gill	= 141.983 cubic centimeters
	= 1.41983 deciliters
pint (4 gills)	= 0.56793 liter
quart (2 pints)	= 1.13586 liters
gallon (4 quarts)	= 4.54345797 liters
peck (2 gallons)	= 9.08692       “
bushel (8 gallons)	= 3.63477 dekaliters
quarter (8 bushels)	= 2.90781 hectoliters

## APOTHECARIES' MEASURE

gallon * (8 pints or 160 fluid oz.)	= 4.54346 liters
fluid ounce f. ℥ (8 drachms)	= 28.39661 cub. centimeters
fluid drachm f. ℥ (16 minims)	= 3.54958       “       “
minim, M (0.91146 grain weight)	= 0.05916       “       “

## AVOIRDUPOIS WEIGHT

grain	= 64.79895036 milligrams
dram	= 1.77185 grams
ounce (16 drams)	= 28.34954       “
pound (16 oz. or 7,000 grains)	= 0.45359265 kilogram
stone (14 pounds)	= 6.35030       “
quarter (28 pounds)	= 12.70059       “
hundred weight (112 pounds)	= 50.80238       “
	= 0.50802 quintal
ton (20 cwt.)	= 1.01604754 millier or tonne

## TROY WEIGHT

Troy ounce (480 grains † avoir.)	= 31.10350 grams
pennyweight (24 grains)	= 1.55517       “

## APOTHECARIES' WEIGHT

ounce ‡ (8 drachms)	= 31.10350 grams
drachm ℥i (3 scruples)	= 3.88794       “
scruple ℥i (20 grains *)	= 1.29598       “

\* The Apothecaries' gallon is of the same capacity as the Imperial gallon.

† The Troy grain is of the same weight as the Avoirdupois and Apothecaries' grain.

‡ The Apothecaries' ounce is of the same weight as the Troy ounce.

## THERMOCHEMISTRY

### LXXXIII. — THERMOCHEMICAL UNITS

THE SMALL CALORIE is the amount of heat required to raise the temperature of one gram of water one degree centigrade (from  $0^{\circ}$  to  $1^{\circ}$ ,  $4^{\circ}$  to  $5^{\circ}$  or  $15^{\circ}$  to  $16^{\circ}$  being used, giving slightly different values).

THE LARGE CALORIE is the amount of heat required to raise the temperature of one kilogram of water one degree centigrade. It is therefore one thousand times as large as the small calorie.

THE BRITISH THERMAL UNIT (B. T. U.) is the heat required to raise the temperature of one pound of water one degree Fahrenheit. As one kilogram is equal to 2.20462 pounds, and one degree centigrade is equal to  $\frac{9}{5}$  degree Fahrenheit, the large calorie is 3.96832 ( $2.20462 \times \frac{9}{5}$ ) times as great as the British Thermal Unit, the small calorie being .00396832 times the British Thermal Unit.

THE HEAT OF COMBUSTION of a substance is the number of small or large calories of heat evolved during the combustion of a gram or a kilogram of the substance.

Using the English weights and measures it is the number of B. T. U. of heat evolved during the combustion of one pound of the substance. To convert the former into the latter value the number of calories must be multiplied by 1.8 ( $3.96832 \div 2.20462$ ).

# LXXXIV.—HEAT OF COMBUSTION OF VARIOUS SUBSTANCES

Substance.	Burned to	Heat Evolved.		Authority.
		Cal- ories.	B.T.U.	
Alcohol, ethyl . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	7184	12931	Favre and Silberman
ethyl . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	7054	12697	Berthelot . . . . .
methyl . . . . .	.....	5330	9594	.....
Asphalt . . . . .	.....	9532	17159	Slossen and Colburn
Benzol C <sub>6</sub> H <sub>6</sub> gas . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	10070	18126	Berthelot . . . . .
gas . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	9650	17370	.....
liquid . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	10030	18054	Stohman . . . . .
Cane sugar . . . . .	.....	3961	7130	Berthelot . . . . .
Carbon crystallized . . . . .	CO . . . . .	2405	4329	Berthelot . . . . .
crystallized . . . . .	CO <sub>2</sub> . . . . .	7859	14146	Berthelot . . . . .
amorphous . . . . .	CO . . . . .	2489	4480	Berthelot . . . . .
amorphous . . . . .	CO <sub>2</sub> . . . . .	8137	14647	Berthelot . . . . .
amorphous . . . . .	CO <sub>2</sub> . . . . .	8080	14544	Favre and Silberman
vapor . . . . .	CO <sub>2</sub> . . . . .	11328	20390	Calculated . . . . .
vapor diamond . . . . .	CO <sub>2</sub> . . . . .	11134	20041	Berthelot . . . . .
Carbonic oxide CO . . . . .	CO <sub>2</sub> . . . . .	5640	10152	Thomsen . . . . .
Cellulose . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	4208	7574	Berthelot . . . . .
Charcoal . . . . .	CO . . . . .	2473	4451	Favre and Silberman
" . . . . .	CO . . . . .	2442	4396	Berthelot . . . . .
" . . . . .	CO <sub>2</sub> . . . . .	8080	14544	Favre and Silberman
" . . . . .	CO <sub>2</sub> . . . . .	8137	14647	Berthelot . . . . .
beech . . . . .	CO <sub>2</sub> . . . . .	7140	12852	Schwackhöfer . . . . .
soft . . . . .	CO <sub>2</sub> . . . . .	7071	12723	Schwackhöfer . . . . .
sugar . . . . .	CO <sub>2</sub> . . . . .	8040	14472	Favre and Silberman
Coal (pure and dry) . . . . .	.....	{ 7800	14040	.....
		{ 9000	16200	.....
Coke gas . . . . .	CO <sub>2</sub> . . . . .	8047	14485	Favre and Silberman
petroleum . . . . .	CO <sub>2</sub> . . . . .	8017	14503	Mohler . . . . .
Copper . . . . .	CuO . . . . .	590	1062	Thomsen . . . . .
Gas, acetylene C <sub>2</sub> H <sub>2</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	11927	21469	Berthelot . . . . .
acetylene C <sub>2</sub> H <sub>2</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	11527	20749	Thomsen . . . . .
coal . . . . .	.....	{ 4440	7990	.....
		{ 7370	12266	.....
ethylene C <sub>2</sub> H <sub>4</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	11858	21344	Favre and Silberman
ethylene C <sub>2</sub> H <sub>4</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	12072	21730	Berthelot . . . . .
ethylene C <sub>2</sub> H <sub>4</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O gas . . . . .	11293	20327	Berthelot . . . . .
methane CH <sub>4</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	13063	23513	Favre and Silberman
methane CH <sub>4</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	13344	24019	Berthelot . . . . .

Substance.	Burned to	Heat Evolved.		Authority.
		Cal- ories.	B.T.U.	
Gas, methane $\text{CH}_4$ . .	$\text{CO}_2 + \text{H}_2\text{O}$ gas. . .	12066	21719	Berthelot. . . . .
petroleum. . . . .	. . . . .	10800	19440	. . . . .
producer. . . . .	. . . . .	{ 773	1391	. . . . .
		{ 1370	2466	. . . . .
water. . . . .	. . . . .	2350	4230	. . . . .
water. . . . .	. . . . .	3032	5458	. . . . .
Glycerene. . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ liquid	4316	7769	Stohman. . . . .
Graphite. . . . .	$\text{CO}_2$ . . . . .	7901	14222	Berthelot. . . . .
Hydrogen. . . . .	$\text{H}_2\text{O}$ liquid. . . . .	34462	62032	Favre and Silberman
" . . . . .	$\text{H}_2\text{O}$ liquid. . . . .	34180	61524	Thomsen. . . . .
" . . . . .	$\text{H}_2\text{O}$ liquid. . . . .	34500	62100	Berthelot. . . . .
" . . . . .	$\text{H}_2\text{O}$ gas. . . . .	28800	51840	Thomsen. . . . .
" . . . . .	$\text{H}_2\text{O}$ gas. . . . .	29150	52470	Berthelot. . . . .
Iron. . . . .	$\text{Fe}_2\text{O}_3$ . . . . .	1582	2848	. . . . .
		{ 6000	10800	. . . . .
Lignite (pure and dry) . . . . .	. . . . .	{ 7000	12600	. . . . .
Magnesium. . . . .	$\text{MgO}$ . . . . .	6077	10939	. . . . .
Naphthalene. . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ liquid	9690	17442	Berthelot. . . . .
" . . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ gas. . .	9354	16837	Berthelot. . . . .
Oil, cotton seed. . . . .	. . . . .	9500	17100	. . . . .
heavy coal gas. . . . .	. . . . .	8900	16020	St. C. Deville. . . . .
olive. . . . .	. . . . .	9473	17051	Stohman. . . . .
rape. . . . .	. . . . .	9489	17080	Stohman. . . . .
schist. . . . .	. . . . .	9000	1620	. . . . .
sperm. . . . .	. . . . .	10000	18000	Gibson. . . . .
Paraffin. . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ liquid	11140	20050	Stohman. . . . .
" . . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ gas. . .	10340	18612	Stohman. . . . .
Peat. . . . .	. . . . .	5940	10692	Bainbridge. . . . .
Petroleum. . . . .	. . . . .	9600	17280	. . . . .
" . . . . .	. . . . .	11000	19800	. . . . .
Pitch. . . . .	. . . . .	8400	15120	. . . . .
Silicon. . . . .	$\text{SiO}_2$ . . . . .	7407	13333	Berthelot. . . . .
Stearic acid. . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ liquid	9374	16873	Stohman. . . . .
Starch. . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ liquid	4228	7610	Berthelot. . . . .
Sulphur, rhombic . . .	$\text{SO}_2$ . . . . .	2221	3998	Favre and Silberman
rhombic. . . . .	$\text{SO}_2$ . . . . .	2166	3899	Berthelot. . . . .
monoclinic. . . . .	$\text{SO}_2$ . . . . .	2241	4034	Thomsen. . . . .
Tallow. . . . .	. . . . .	9500	17100	Stohman. . . . .
Wood, hard. . . . .	. . . . .	4750	8550	Gottlieb. . . . .
soft resinous. . . . .	. . . . .	5050	9090	Gottlieb. . . . .

LXXXV.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF  
ANTHRACITE COAL\*

Source and Grade of Coal.	Chemical Composition.									Heat of Combustion.		
	Carbon.		Fixed.	Total.	Hydrogen.	Oxy- gen.	Nitro- gen.	Sul- phur.	Water.	Ash.	Cal- ories.	B.T.U.
	Volatile.											
Lackawanna.....	84.0	5.0	.....	.....	.....	.....	.....	.....	.....	11.0	7724	13900
Black Mountain.....	92.41	2.17	.....	.....	.....	.....	.....	.....	.....	5.42	8333	15000
Lykens Valley buckwheat.....	76.94	6.21	.....	.....	.....	.....	.....	.....	.....	15.5	7833	14100
Lykens Valley buckwheat.....	81.0	5.0	.....	.....	.....	.....	.....	.....	.....	14.0	7583	13650
Mount Pleasant Scranton pea.....	76.28	7.49	.....	.....	.....	.....	.....	.....	.....	10.01	7806	14050
Treverton.....	85.66	6.67	90.66	1.73	0.78	.001	.....	.....	0.84	6.83	8442	15195

\* Most of the data for this table have been quoted from The Caloric Power of Fuels by Poole.

LXXXVI.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF  
BITUMINOUS COAL\*

Source and Grade of Coal.	Chemical Composition.										Heat of Combustion.	
	Carbon.			Sulphur.	Nitro- gen.	Oxy- gen.	Water.	Ash.	Cal- ories.	B.T.U.		
	Fixed.	Volatile.	Total.									
Indiana: Brazil.....	50.30	34.49	70.50	4.76	16.29	1.36	1.39	8.98	6.28	8079	14542	
Lancaster.....	47.22	37.44	71.41	5.56	18.42	1.54	0.62	12.66	2.68	7917	14251	
Ohio: Brier Hill.....	59.1	36.4	.....	.....	.....	.....	.....	.....	4.5	7888	14200	
Hocking Valley.....	49.05	36.05	68.18	4.65	9.40	1.44	1.43	6.40	8.50	7767	13981	
Waterford.....	53.34	37.29	74.39	4.98	6.42	1.40	3.44	1.55	7.82	8230	14814	
Pennsylvania: Carnegie.....	56.20	36.42	77.20	5.10	7.22	1.68	1.42	1.45	5.93	8304	14947	
West Virginia: Pocahontas.....	73.65	18.30	83.75	4.13	2.65	0.85	0.57	0.80	7.25	8768	15682	
Pocahontas ad.....	74.52	18.10	.....	.....	.....	.....	0.60	0.73	6.65	8751	15739	
Thacker.....	57.10	35.00	78.90	4.98	5.64	1.42	1.16	1.40	6.50	8434	15181	
Wyoming: Diamond.....	44.30	33.35	77.65	.....	.....	.....	0.42	14.50	7.85	6477	11658	
Harker.....	43.90	33.52	77.40	.....	.....	.....	1.03	7.88	14.70	7433	13380	
Jumbo.....	43.65	40.13	83.78	.....	.....	.....	4.57	5.72	10.50	7873	14170	

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

LXXXVII.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF  
OVEN COKES \*

Source of Cokes.	Chemical Composition.							Heat of Combustion.			
	Carbon.		Hydrogen.	Oxy- gen.	Nitro- gen.	Sul- phur.	Water.	Ash.	Cal- ories.	B.T.U.	
	Fixed.	Volatile.									Total.
Connellsville, Pa. . . . .	89.58	0.46	.	...	...	0.81	0 03	9.11	7895	14211	
Dade, Pa. . . . .	75.94	0.09	...	...	...	0.67	0 54	21.75	7953	14315	
Pineville, W. Va. . . . .	94.66	0 04	...	...	...	0.69	1 14	3.57	8006	14128	
Pocahontas, W. Va. . . . .	92 80	0.66	...	...	...	0 55	0 66	4.91	8032	14457	
Pratt, Pa. . . . .	88.87	1.58	...	...	...	1.18	1 92	8 99	7946	14300	
Seymore, Pa. . . . .	90.65	0.63	...	...	...	0.85	0 22	7 65	8036	14468	
St. Bernard, Pa. . . . .	90.69	0.34	...	...	...	2.37		8 96	7995	14340	

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.



LXXXVIII.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION  
OF LIGNITE \*

Source of Coals.	Chemical Composition.								Heat of Combustion.	
	Carbon.		Sulphur.	Nitro- gen.	Oxy- gen.	Ash.	Water.	Cal- ories.	B.T.U.	
	Fixed.	Volatile.								
			Total.							
Cannon City, Col.	51.36	37.61	7.38	1.50	9.27	4.03	7.01	7276	13097	
Erie, Col....	45.98	32.71	4.25	1.64	6.65	2.74	18.57	6311	11360	
Golden City, Col.....	34.89	44.74	5.14	1.50	14.60	3.22	17.15	5432	9778	
Golden City, Col.....	42.08	36.20	5.07	1.20	27.77	3.37	18.35	4530	8154	
Golden City, Col.....	38.46	41.23	4.89	0.95	13.88	2.67	17.64	5526	9947	
Gunnison River, Col.....	84.65	12.16	3.72	1.62	4.20	2.29	1.50	7911	14240	
Lechner's South Park, Col....	58.62	33.79	5.23	2.35	12.86	1.28	6.30	6780	12204	

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

LXXXIX. — CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF WOOD\*

Name.	Chemical Composition.						Heat of Combustion.	
	Carbon.	Hydrogen.	Oxygen.	Nitrogen.	Ash.	Water.	Calories.	B.T.U.
Ash.....	49.18	6.27	43.91	0.07	0.57	.....	4711	8480
Beech.....	49.06	6.11	44.17	0.09	0.57	.....	4774	8591
Birch.....	48.88	6.06	44.67	0.10	0.29	.....	4771	8586
Elm.....	48.89	6.20	44.25	0.06	0.50	.....	4728	8510
Fir.....	50.36	5.92	43.39	0.05	0.28	.....	5035	9063
Oak.....	50.16	6.02	43.36	0.09	0.37	.....	4620	8316
Pine.....	50.31	6.20	43.08	0.04	0.37	.....	5085	9153
Tan bark.....	.....	.....	.....	.....	15.0	.....	3389	6100
“ “	.....	.....	.....	.....	.....	30.0	2380	4284

XC. — CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF PETROLEUM \*

Source.	Grade.	Specific Grav-ity.	Chemical Composition.				Heat of Combustion.	
			Carbon.	Hydrogen.	Oxygen + Ni-trogen.	Oxy-gen.	Cal-ories.	B.T.U.
Ohio.....	Heavy...	0.887	84.2	13.1	2.7	...	10399	18718
	Lima....	.....	80.2	17.1	2.7	....	12000	21600
Pennsylvania	Crude....	0.938	84.9	13.7	....	1.4	11520	20736
	Heavy...	0.886	84.9	13.7	1.4	....	10672	19210
	Light....	0.826	82.0	14.8	3.2	....	9963	17930
West Virginia	Heavy...	0.928	88.3	13.9	....	0.8	10102	18184
	Heavy...	0.873	83.5	13.3	3.2	....	10180	18324
	Light....	0.841	84.3	14.1	1.6	....	10223	18400
Russia.....	Crude....	0.884	86.3	13.6	....	0.1	12650	22628
	Crude....	0.938	86.6	12.3	....	1.1	10800	19440

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

# XCI.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF NATURAL GAS \*

Source of Gas.	Chemical Composition.							Heat of Combustion.			
	Hydro- gen, H <sub>2</sub>	Meth- ane, CH <sub>4</sub>	Ethyl- ene, C <sub>2</sub> H <sub>4</sub>	Illumi- nants.	Carbon Dioxide, CO <sub>2</sub>	Carbon Mon- oxide, CO	Oxygen, O <sub>2</sub>	Nitro- gen, N <sub>2</sub>	Hydro- gen Sul- phide, H <sub>2</sub> S.	Calories per Cu. M.	B.T.U. per Cu. Ft.
Indiana, Kakomo.....	1.42	94.16	0.30	.....	0.27	0.55	0.30	2.80	0.18	9581	1030
Munice.....	2.35	92.67	0.25	.....	0.25	0.45	0.35	3.53	0.15	9477	1019
Kentucky, Louisville.....	1.31	87.75	.....	.....	6.60	.....	.....	4.34	.....	8849	939
New York, Olean.....	.....	96.50	.....	1.00	.....	0.50	2.00	.....	.....	9900	1071
W. Bloomfield.....	.....	82.41	.....	2.94	10.11	.....	0.23	4.31	.....	9158	998
Ohio, Findlay.....	2.18	92.60	.....	0.31	0.26	0.50	0.34	3.61	0.20	10250	1100
Pennsylvania, Burn's Well.....	6.10	75.44	18.12	trace	0.34	trace	.....	.....	.....	10090	1170
Cherry Tree.....	22.50	60.27	6.80	.....	2.28	.....	0.38	7.32	.....	8034	840
E. Liberty.....	9.64	57.85	0.80	5.20	.....	1.00	2.10	23.41	.....	5581	592
Leechburg.....	4.89	89.65	4.39	0.56	0.35	0.26	.....	.....	.....	9962	1073
Grapeville.....	24.56	14.93	0.96	39.64	trace	trace	0.12	18.69	.....	8326	891
Murraysville.....	19.56	78.24	.....	.....	.....	.....	2.20	.....	.....	8458	900
Pittsburg.....	20.02	72.18	.....	6.30	0.80	1.00	0.80	.....	.....	8620	917

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

# XCII. —CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF COAL GAS \*

Source of Gas.	Chemical Composition.							Heat of Combustion.			
	Hydro- gen, H <sub>2</sub> .	Meth- ane, CH <sub>4</sub> .	Ethyl- ene, C <sub>2</sub> H <sub>4</sub> .	Illumi- nants.	Carbon Dioxide, CO <sub>2</sub> .	Carbon Mon- oxide, CO.	Oxygen, O <sub>2</sub> .	Nitro- gen, N <sub>2</sub> .	Hy- drogen Sul- phide, H <sub>2</sub> S.	Calories per Cu. M.	B.T.U. per Cu. Ft.
Boston, Mass. ....	47.49	38.67	5.21	.....	1.04	6.74	..	0.85	.....	6095	651
Cape Breton, Canada.....	44.6	39.2	..	6.2	1.4	4.5	0.6	3.3	.....	5460	612
Cape Breton, Canada.....	45.4	36.5	..	5.2	2.2	3.6	0.6	6.3	.....	5455	611
Cincinnati, Ohio.....	45.85	39.26	5.17	.....	0.82	4.78	0.41	3.71	.....	6039	645
Cleveland, Ohio.....	34.80	28.80	9.50	1.70	0.20	10.40	0.40	14.20	.....	6151	657
Coke Ovens, Johnston, Pa.	57.2	18.8	.....	0.8	2.00	3.20	.....	18.0	.....	3736	399
Coke Ovens, Westphalia..	53.2	36.11	.....	2.24	1.41	6.49	.....	.....	0.43	5730	612
Hoboken, N. J. ....	39.50	37.30	5.85	0.75	2.70	4.30	1.40	8.20	.....	6039	645
International, Canada....	46.5	35.7	.....	5.0	3.1	5.7	0.5	3.7	.....	5536	620
Newton, Mass.....	50.59	34.80	.....	5.23	1.16	6.16	.....	2.06	.....	5608	599

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

## XCIII.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF WATER GAS \*

Source of Gas.	Chemical Composition.							Heat of Combustion.			
	Hydro- gen, H <sub>2</sub> .	Meth- ane, CH <sub>4</sub> .	Ethyl- ene, C <sub>2</sub> H <sub>4</sub> .	Illumi- nants.	Carbon Dioxide, CO <sub>2</sub> .	Carbon Mon- oxide, CO.	Oxygen, O <sub>2</sub> .	Nitro- gen, N <sub>2</sub> .	Heat of combustion per cu. ft. H <sub>2</sub> .	Calories per Cu. M.	B.T.U. per Cu. Ft.
Anthracite gas.....	52.76	.....	.....	4.11	2.05	35.38	.....	4.43	.....	3385	386
Coke .....	50.10	.....	.....	0.70	4.00	40.00	.....	5.3	.....	2859	294
Coke and bituminous coal. ....	94.08	.....	.....	.....	0.50	3.54	.....	0.12	.....	3032	324
Granger process (uncarburetted).....	52.88	2.16	.....	3.47	.....	36.8	.....	4.69	.....	2642	283
Granger process (carburetted) .....	30.0	24.0	12.5	0.3	.....	29.0	0.2	2.5	1.5	6000	640
Granger process (from coke) .....	52.41	0.2	.....	.....	4.8	11.5	.....	0.47	.....	3098	331
Loomis process, Boston, Mass .....	53.40	3.10	.....	0.29	7.60	29.50	.....	6.05	.....	2884	308
Lowe process, Des Moines (1½ gal. oil)	41.7	12.2	.....	5.4	4.5	34.6	0.4	1.2	.....	4580	490
Lowe process, Des Moines (2½ gal. oil) .	37.6	16.5	.....	8.9	3.7	30.7	0.7	1.9	.....	5514	590
Lowe process, Philadelphia, Pa.....	50.9	.....	.....	.....	.....	44.5	0.07	2.08	.....	3062	327
New York City, 1897.....	32.7	16.8	.....	14.4	2.4	30.2	0.4	3.1	.....	7160	766
Rose-Hastings, Louisville, Ky. (soft c'l)	36.4	23.2	.....	14.05	3.02	19.1	1.15	3.08	.....	6140	657
Rose-Hastings (generator gas).....	9.8	49.6	.....	1.1	8.1	28.1	0.3	3.9	.....	3482	390
Rose-Hastings (enriched) .....	26.0	34.6	.....	11.9	5.6	10.9	0.3	1.6	.....	6000	673
Strong Process, Yonkers, N. Y.....	52.76	4.11	.....	.....	2.05	35.88	0.77	4.43	.....	2900	315

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.



# REVIEW OF CHEMICAL LITERATURE

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A LIST OF THE MORE IMPORTANT ARTICLES WHICH HAVE  
BEEN PUBLISHED SINCE JAN. 1, 1905.





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# GENERAL INORGANIC CHEMISTRY

BY JOHN C. OLSEN, A.M., PH.D.

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BY ALLEN ROGERS, PH.D.

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By V. J. CHAMBERS, PH.D.

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# PHYSICAL CHEMISTRY

BY J. LIVINGSTON R. MORGAN, PH.D.

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# INDEX.

- Acetic acid**, specific gravity of, 355.  
**Acid values** of oils, conversion into oleic acid, 64.  
**Acid and bases**, value of normal solutions of, 49.  
**Acids**, basicity of, with various indicators, 48.  
**Alcohol**, percentage of, by volume and by weight, 366.  
     specific gravity and percentage of, by volume, 365, 366.  
     methyl, specific gravity of, 372.  
**Ammonia**, specific gravity of, 357.  
**Ammonium chloride**, specific gravity of solutions of, 375.  
     sulphate, specific gravity of solutions of, 374.  
**Analytical chemistry**, review of, 419.  
**Anthracite coal**, chemical composition and heat of combustion of, 408.  
**Atomic and molecular weights and their logarithms**, 39.  
**Atomic weights** for 1906, 1.  
**Available chlorine** in bleaching powder solution at 15°, 375.  
  
**Barometer readings**, correction of, for temperature, 68.  
**Basicity** of acids with various indicators, 48.  
**Baumé degrees** and specific gravity, equivalent of, 328.  
**Bituminous coal**, chemical composition and heat of combustion of, 409.  
**Bleaching powder solution**, available chlorine in, 375.  
**Boiling point** of water at 680 to 800 mm. pressure, 391.  
**British Imperial and metric weights and measures**, equivalents of, 401.  
**Butyro-Refractometer readings**, conversion of, to indices of refraction, 65.  
  
**Cadmium chloride**, specific gravity of solutions of, 380.  
**Calculation**, of gas analyses, tables for, 66.  
     of volumetric analyses, tables for, 48.  
**Chemical and physical constants** of  
     fats and waxes, 58.  
     lubricating oils, 62.  
     oils, 54.  
     composition and heat of combustion of anthracite coal, 408.  
     bituminous coal, 409.  
     coal gas, 414.  
     lignite, 411.  
     natural gas, 413.  
     oven cokes, 410.  
     petroleum, 412.  
     water gas, 415.  
     wood, 412.  
     literature, review of, 417.  
**Coal**, chemical composition and heat of combustion of, 409.  
     gas, chemical composition and heat of combustion of, 414.  
**Coefficient of expansion** of gases, 69.  
**Coke**, chemical composition and heat of combustion of, 410.  
**Comparison** of metric and U. S. weights and measures from 1 to 10, 395.  
**Conversion** of acid values of oils into oleic acid, 64.  
     of Butyro-Refractometer readings to indices of refraction, 65.  
**Correction** of barometer readings for temperature, 68.  
**Cupric chloride**, specific gravity of solutions of, at 17.5°, 375.  
     sulphate, specific gravity of solutions of, 376.  
  
**Density**, of gases, 3.  
     of nitrogen, 70.  
     of water at 0° to 36°, 381.

**Density of water**

at 30° to 102°, 382.

at 100° to 320°, 382.

**Elements, Mendeléeff's periodic system of, 2.**

physical constants of, 4.

**Equivalents, of degrees Baumé and specific gravity, 328.**

of metric and British Imperial weights and measures, 401.

of metric and U. S. weights and measures, 393.

**Factors, for the calculation of indirect gravimetric analyses, 37.**

gravimetric and their logarithms, 10.

**Fats and waxes, physical and chemical constants of, 58.****Ferric chloride, specific gravity of solutions of, 376.**

sulphate, specific gravity of solutions of, 377.

**Ferrous sulphate, specific gravity of solutions of, 377.****Fuming sulphuric acid, percentage of sulphur trioxide in, 347.**

specific gravity of, 342.

**Fundamental equivalents of metric and U. S. weights and measures, 394.****Gas analyses, tables for the calculation of, 66.**

coal, chemical composition and heat of combustion of, 414.

natural, chemical composition and heat of combustion of, 413.

water, chemical composition and heat of combustion of, 415.

volumes, reduction of, to 0° and 760 mm., 66.

**Gases, coefficient of expansion of, 69.**

density of, 3.

**General inorganic chemistry, review of, 431.****German books, review of, 474.****Glycerene, specific gravity of aqueous solutions of, 373.****Gravimetric factors and their logarithms, 10.****Heat of combustion of anthracite coal, 408.**

bituminous coal, 409.

coal gas, 414.

lignite, 411.

natural gas, 413.

oven cokes, 410.

petroleum, 412.

various substances, 406.

water gas, 415.

wood, 412.

**Hydrochloric acid, specific gravity of, 352, 354.****Indirect gravimetric analyses, factors for the calculation of, 37.****Industrial chemistry, review of, 438.****Inorganic chemistry, review of, 431.**

compounds, physical constants of, 93.

**International atomic weights for 1906, 1.****Lignite, chemical composition and heat of combustion of, 411.****Lithium chloride, specific gravity of solutions of, 380.****Logarithms, table of, 73.****Lubricating oils, physical and chemical constants of, 62.**

physical constants of, 61.

**Mendeléeff's periodic system of the elements, 2.****Mercury, vapor tension of, at 40° to 880°, 392.****Methyl alcohol, specific gravity of, 372.****Metric and British Imperial weights and measures, equivalents of, 401.**

and U. S. weights and measures, equivalents of, 393.

fundamental equivalents of, 394.

**Molecular and atomic weights and their logarithms, 39.****Natural gas, chemical composition and heat of combustion of, 413.****New books, review of, 465.****Nitric acid, specific gravity of, 348, 350.****Nitrogen, density of, 70.**

- Normal solutions** of acids and bases, value of, 49.  
oxidizing and reducing solutions, value of, 51.  
precipitation reagents, value of, 53.
- Oils**, physical and chemical constants of, 54.
- Organic chemistry**, review of, 443.  
compounds, physical constants of, 210.
- Oxidizing and reducing solutions**, value of normal solutions of, 51.
- Percentage** of alcohol by volume and by weight 366.
- Periodic system** of the elements, 2.
- Petroleum**, chemical composition and heat of combustion of, 412.
- Phosphoric acid**, specific gravity of, 356.
- Physical, chemistry**, review of, 450.  
constants of inorganic compounds, 93.  
of lubricating oils, 61.  
of organic compounds, 210.  
of the elements, 4.  
and chemical constants of fats and waxes, 58.  
of lubricating oils, 62.  
of oils, 54.
- Potassium carbonate solutions**, specific gravity of, 364.  
chromate, specific gravity of solutions of, 378.  
dichromate solutions, specific gravity of, 378.  
hydroxide, specific gravity of solutions of, 360.
- Precipitation reagents**, value of normal solutions of, 53.
- Radioactivity**, review of, 462.
- Reduction** of gas volumes to 0° and 760 mm., 66.
- Refractive indices** of oils, temperature correction for, 64.
- Review** of analytical chemistry, 419.  
chemical literature, 417.  
general inorganic chemistry, 431.  
industrial chemistry, 438.  
new books, 465.
- Review** of  
organic chemistry, 443.  
physical chemistry, 450.  
radioactivity, 462.
- Sodium, carbonate solutions**, correction of specific gravity of, 363.  
specific gravity of, 362, 363.  
chloride solutions, specific gravity of, 378.  
dichromate solutions, specific gravity of, 379.  
hydroxide, specific gravity of solutions of, 359.
- Specific gravity and Baumé degrees**, equivalent of, 328.  
tables, 328.  
and percentage of alcohol by volume, 365, 366.  
of acetic acid, 355.  
ammonia, 357.  
ammonium chloride solutions, 375.  
ammonium sulphate solutions, 374.  
aqueous solutions of glycerene, 373.  
cadmium chloride solutions, 380.  
cupric chloride solution, at 17.5°, 375.  
cupric sulphate solutions, 376.  
ferric chloride solutions, 376.  
ferric sulphate solutions, 377.  
ferrous sulphate solutions, 377.  
fuming sulphuric acid, 342.  
hydrochloric acid, 352, 354.  
lithium chloride solutions, 380.  
methyl alcohol, 372.  
nitric acid, 348, 350.  
oils, temperature correction for, 64.  
phosphoric acid, 356.  
potassium carbonate solutions, 364.  
potassium chromate solutions, 378.  
potassium dichromate solutions, 378.  
potassium hydroxide solutions, 360.  
sodium carbonate solutions, 362, 363.